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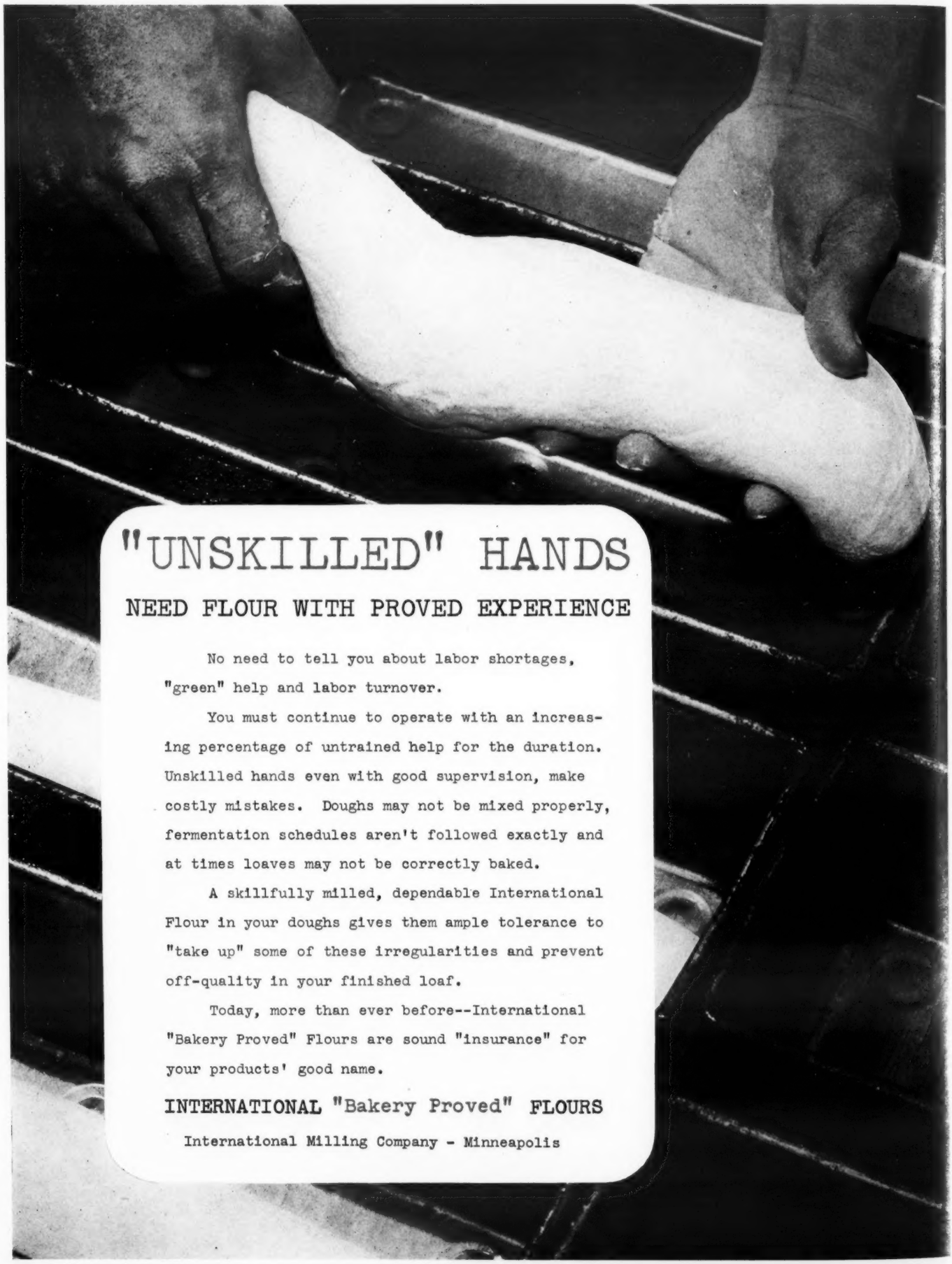

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Capt. James Lawrence, commanding the USS *Chesapeake* during the War of 1812, engaged in battle with an enemy frigate that had been blockading Boston. During the action, Lawrence was mortally wounded. His last words as he was carried from the deck were: "Don't give up the ship!" The words promptly became the battle cry of the American Navy. A flag bearing the slogan was proudly flown and gallantly borne to victory by Oliver Hazard Perry in the Battle of Lake Erie a little later. That battle-tattered flag is still preserved at Annapolis . . . and the spirit it exemplifies has inspired the nation in every war it has fought, against whatever enemy and against whatever odds.

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FINE FLOUR IN THE ROMAN ERA

HAND milling processes were conducted and brought to a comparatively high state of efficiency by the Romans in the Christian era. At this time, when the use of the mortar and saddlestone was declining, and the quern was opening out a new era in the milling world, the Romans, on the brink of the great discovery of power mills, experimented in every direction to secure the most efficacious method of reducing their abundant grain.

Though wheat of several varieties was produced in abundance, the ancient food of flour of acorns and other nuts still survived in some places, though not to any extent in Rome. Pliny states that there were 13 varieties of these glandes, or nuts, including acorns, beechnuts and hard kernel fruits of all kinds.

The nutritive qualities of the chestnut also were doubtless not overlooked, and chestnut flour and bread were then in far more common use than at any subsequent time.

The cereals included winter grains, wheat, spelt and barley; and summer grains, millet, panic, sesame; with which were used beans, peas, etc. Several kinds of bread were made from millet, but very little from panic, a coarse grain, deriving its name from the panicule, or down, appearing upon it. Pliny says:

"Of all these grains barley is the lightest, its weight rarely exceeding 15 lbs to the modius, while that of the bean is 22 lbs; spelt is much heavier than barley, and wheat heavier than spelt. In Egypt they make a meal of olyra, a third variety of corn that grows there. The Gauls have also a kind of spelt peculiar to that country, which they call brace. This grain, which is known to us as sandala, is of remarkable whiteness, and yields nearly 4 lbs more bread to the modius than any other kind of spelt."

Of Italian wheat, Varro, who lived a century earlier than Pliny, had spoken with enthusiasm: "What corn shall I compare with that of Campania; what wheat with that of Apulia? Is not Italy so well planted that it looks like a garden?"

Pliny follows in the same strain of admiration: "There are numerous kinds of wheat, but for my part I can compare none of that of Italy, either for whiteness or weight."

Though, therefore, acorns and beans were consumed on the verge of civilization in times of dearth, Rome, in the age of Pliny, was rich in wheat, barley and rye, of high quality, and admirably calculated to evoke the utmost efforts of the age to render milling as perfectly adapted as possible to the production of the finest flour. Fine bread in almost innumerable variety not only graced the tables of patricians but also filled the boards of humble plebeians.

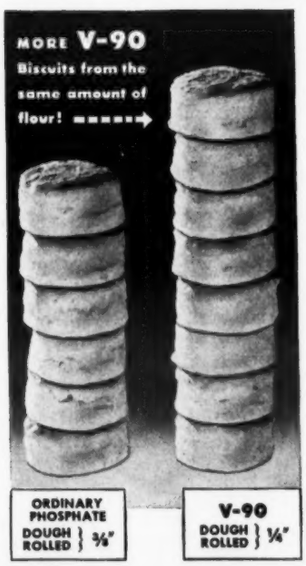
The use of loose stones driven by hand naturally had always led to the grinding away of the stones and the mixture of grit with the flour. Theoretically, of course, grinding stones should never actually touch each other nor wear one another away, but with mere loose hand stones this perfection was an impossibility.

The consequent mixture of sand with the flour had certainly not been relished in Egypt, where, according to the Talmud, it was specially because of the discovery of "stone grits in the bread of the King," that Pharaoh's chief baker found himself in prison in company with Joseph.

The excessively worn condition of the teeth of even royal Egyptian mummies (as of those of the Esquimaux of our own day) is attributed by Egyptologists to the consumption of bread thus mixed with grit from millstones. But centuries later the commonalty, unlike kings, seem to have been tolerably well used to sand in their flour.

Among Pliny's eulogies of bread made from wheat, "bread of the very finest quality," not the least is the fact that it is "sine pondere," without heaviness, not oppressive. While the Romans could be so particularly fastidious as is here suggested, they are not likely to have consumed more than they could help of sand ground from millstones or bricks.

In fact, we know they were at great pains by repeated boltings to free their flour from the unwelcome result of imperfect methods of grinding. Though the Romans regarded salt with special veneration as the emblem of friendship and other virtues, and though they anciently propitiated their gods with choice offerings of salted cake, there is no reason for imagining they ever added



. . . just roll the dough thinner and get lighter and more biscuits !

Tell 'em . . . and you'll sell 'em! Tell those folks who like to sop up their gravy with piping hot, melt-in-your-mouth biscuits, how they can get 33% *more "gravy mileage"* from a pound of your flour. Here's how it's done . . .

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Ht. 6 biscuits	6.5"	6.4"
Biscuits per lb. flour	38.6	51

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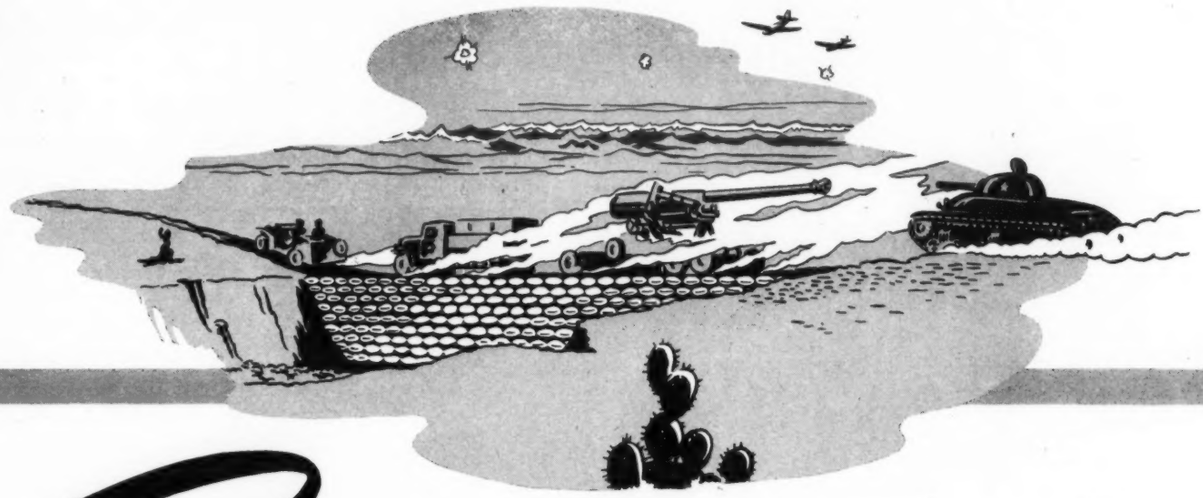

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salt to their flour to such an extent as to render the bread specially salty to the taste.

Pliny does indeed tell us of an Italian custom of mixing chalk with alicia meal for the purpose of whitening it and causing it to bake "short"; but this, he says, is "a most singular fact," and evidently, from his point of view, an impropriety: "The meal is sifted into first, seconds and thirds: but none of these have that whiteness for which the alicia is so distinguished. Accordingly, a most singular fact, chalk is mixed with the meal, which, upon being well incorporated with it, adds very materially to both the whiteness and the shortness, teneritatem, of the mixture. This chalk is found between Puteoli and Naples, upon a hill called Leucogæum (from the Greek, meaning 'white earth')."

The value of sifting, in any case, would early become self-evident. An Egyptian carving in the tombs of Bab-el-Moluk shows us not only pounders at work, but one of their number definitely engaged in sifting the grain. There is no doubt that the Greeks, like earlier nations, did ordinarily sift the fine meal from coarse.

In the earliest Biblical references to the grinding of grain occurs the expression "fine meal" (Gen. xviii, 6). The term referred generally to the meal or flour of wheat, which would usually be sieved. It is interesting to observe that the word used in the original Hebrew is indicative both of fine flour and meal; being used in the above passage and in Isaiah xlvii, 2.

It is evident that fine meal or flour might be produced by the grinding operation alone. Everything would depend upon the manner in which the operation was performed. The women, no doubt, conducted the process with varying degrees of skill and zeal.

One would reduce the grain carefully and thoroughly, devoting adequate time and pains to bringing about the best and smoothest flour. Another might hastily and perfunctorily get through the tedious task as rudely and rapidly as possible, producing merely a coarse, irregularly ground meal.

Here would be perceived a distinction between flour and fine flour, though both were produced by the same single operation of grinding. But the greatest care would usually be exercised with regard to the finest grain, wheat. Hence wheaten flour and fine flour, in the Old Testament, appear interchangeable terms for the one article.

For instance, it was directed that the unleavened cakes used at the consecration of priests should be of "wheaten flour" (Ex. xxix, 2). Among the duties set forth for the Levites to observe was the charge of the "fine flour for meat offering and for the unleavened cakes" (I. Chron. xxiii, 29).

So far as Biblical evidence goes we may, in short, be justified in considering "fine flour" to be well-ground wheaten flour after being put through the best process of bolting or sieving of which the Hebrews had any knowledge.

Apart from the subject of offerings, there are various other references to fine flour, attributing to it a degree of preciousness that would very imperfectly be applicable to rye or barley meal.

In Rome, shortly before the Christian era, Virgil describes the peasant in Moretus sifting his meal: and toward the close of the first century, A.D., sieving, then a very ordinary process, is frequently mentioned by Pliny, the aim being not merely to eliminate the sand resulting from grinding, but to produce distinct grades of flour.

There were various kinds of sieves. "The Gauls were the first to employ the horse-hair bolter; the Spaniards make their sieves and meal dressers of flax and linen, and the Egyptians of papyrus and rushes."

The value of bolting is illustrated by the remark: "The excellence of the finest kinds of bread depends principally on the goodness of the wheat and the fineness of the bolter."

Pliny mentions several applications of the process, one of the most interesting being that for making spurious African alicia:

"They pound the grain with sand, and the husks are thus, though with difficulty, removed; the grain being then only one half its former measure. Subsequently gypsum in the proportion of one fourth of the quantity of meal is spread among it and, when the whole is thoroughly mixed, the bolting of the flour follows. What first remains in the sieve is the refuse, and is called the excepted or rejected part of the grist, and exceedingly coarse it is. Afterwards that which has passed through the sieve is sifted again, and the finer product is called seconds. The cribaria, or pure sieved flour, is that which, in a similar way, is passed through a sieve of the most perfect fineness. In this general manner are the sands eliminated."

As to the method of sifting wheat, Pliny says: From one modius of the grain there should be extracted four sextars of bolted flour, half a modius of white meal, four sextars of coarse meal,

(Continued on page 26.)

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As We are of Ours...
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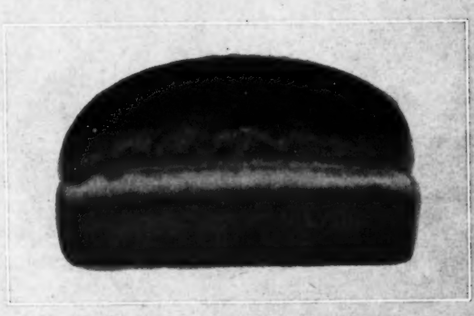
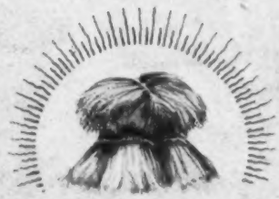


Bread is the Staff of Life



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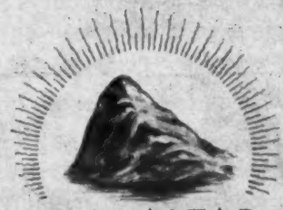

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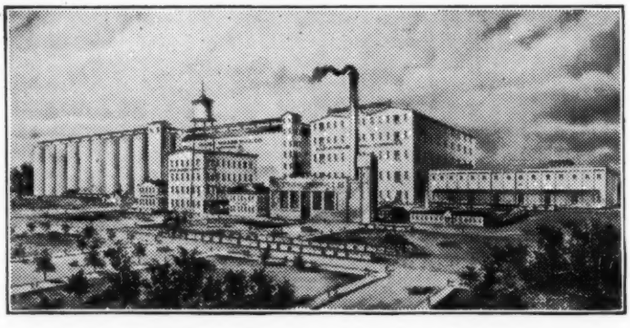

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More Protest on Enriched Flour Only

BAKERS PREPARE STRONG BRIEFS IN OPPOSITION TO WFA PROPOSAL

Senate Small Business Committee Confers With WFA Officials—Institute of Baking Suggests Alternate Methods—Cake and Cracker Enrichment Condemned

By EMMET DOUGHERTY

Washington Correspondent of THE NORTHWESTERN MILLER

WASHINGTON, D. C.—Fearful that the prevailing opinion in the War Food Administration is in favor of ordering the enrichment of all flour at the mill level, which bakers believe would prove a too costly operation, not commensurate with the expected benefits from a nutritional standpoint, the American Bakers Association is preparing to file a strong brief in opposition to any compulsory action by the government. The brief will be filed Aug. 11, the last day on which WFA will consider statements addressed to the subject of enrichment.

Meanwhile representatives of the Senate Small Business Committee have conferred with WFA officials on the necessity of requiring the baking industry to depart from its present practice of doing its own enriching through the use of additional ingredients to the dough. It is understood that the senatorial representatives stated that should any action be taken by the WFA which would penalize the smaller bakers and perhaps drive more of them out of business, the Senate Small Business Committee will instigate an investigation to seek all the facts.

WFA officials continued to maintain strict secrecy on the scope of the proposed enrichment order, but it was officially learned that the enrichment of all family flour at the mill would be required and an amendment to Food Distribution Order No. 1 would be issued to make its provisions take in restaurants and other industrial users, in the event that an all-over enriching regulation was found unwise.

Protests from individual bakers against the compulsory use of enriched flour continue to pile up on the desk of S. R. Smith, deputy director of the Food Distribution Administration, who presided at the recent public hearing.

AIB FILES BRIEF

Among the briefs already on Mr. Smith's desk is a statement from Dr. Franklin C. Bing, director of the American Institute of Baking, Chicago. Dr. Bing proposes:

1.—Food Distribution Order No. 1 be revised to make it necessary for all hotels, restaurants and institutions to enrich their products.

2.—New orders be written to require enrichment of variety breads, such as raisin and rye, and all soft buns and rolls. The enrichment of these variety breads and articles for which no definitions are at present contemplated by the Food and Drug Administration, should be done in such a manner that the products will have the nutritive value that they would have if made from enriched flour. The final baked products would be known as "enriched bread" and "enriched rolls," because these products will be defined by regulations of the Food and Drug Administration. For all other products that are not defined, it could be said that they were "made with enriched flour," even though the baker enriched the dough rather than used enriched flour in their production. Doughnuts could also be included in this order and probably should be included because of their popularity with industrial workers, and they could be called "doughnuts, made with enriched flour." In writing up the order, it would be useful if the requirement were made that these products should be labeled in this way and, if sold without labels, that the fact that they are made with enriched flour in accordance with the order be displayed at the point of sale wherever practicable. Further consultation with bakers on some of the technical aspects of such an order, before its promulgation, would be desirable.

3.—An order could be written requiring the enrichment of all family flour. It would be helpful also if the order were written requiring that such flour be labeled "enriched." A definition of what constitutes family flour should also be included, and no doubt this could be developed through consultation with the representatives of the milling industry and with representatives of other government agencies that have had experience with such problems.

4.—An alternative proposal would be the writing of an order requiring all flour, other than that labeled "cake flour," to be enriched except that sold on certificate of intent to enrich when that flour is used in the production of ——— (and here list specifically by name the classes of baked foods to be covered).

Dr. Bing points out that such an arrangement would close the gap of enrichment for the products of all except some 12,000,000 bbls of flour used for cakes, crackers and similar goods, which amounts to about 10% of flour production. There is evidence, Dr. Bing said, that an appreciable destruction of thiamine occurs in production of these products, running as high as 85 to 90% in small goods, and that there would be no nutritional purpose served by requiring their enrichment. In fact, the National Research Council has frowned on enrichment of alimentary pastes because of such losses and no group of scientists or health authorities has recommended enrichment of such products.

In effect, Dr. Bing points out, FDA is recommending the waste of the major part of enriching ingredients of some 12,000,000 bbls of flour, simply to make enforcement easier.

The matter of final responsibility for the legal enrichment of bread, in the event that use of enriched flour only is made compulsory, apparently now has been settled. As far as the Food and Drug Administration is concerned, the baker will still be responsible for the enrichment quality of his bread. When bakers raised this question at the recent public hearing on enriched flour use, it was indicated that, should enriched flour be required, WFA would turn its enforcement activities toward the milling industry and that the baker would not be expected to be liable for enriched bread.

But the Food and Drug Administration takes no such position. While stating that, in such event, administration investigations would be directed primarily toward flour, W. G. Campbell, head of the food and drug agency, has declared that bakers still are legally responsible if they introduce into interstate commerce a loaf labeled "enriched" which fails to conform to the standard. Mr. Campbell advised bakers to demand a guarantee from the flour miller that his flour conforms to the enrichment standard.

At the same time, Mr. Campbell said that if enriched flour were used in cakes and similar goods for which there is no federal standard of identity, it would not be necessary to include a dietary food statement on the label, provided no emphasis was placed upon the fact of enrichment and if the product was not labeled as enriched or advertised as such. In the latter case, a dietary statement would be required.

WPB SAYS MACHINERY PRODUCTION QUOTAS WILL BE ANNOUNCED SOON

Manufacturers Again Given Assurance by Federal Officials That Sufficient Material Will Be Allotted to Care for Needs of Food Processors

WASHINGTON, D. C.—(Special)—Production quotas for food manufacturing equipment and supplies for the calendar year Oct. 1, 1943 to Oct. 1, 1944, are expected to be announced within a short time—perhaps within the next week or 10 days—by WPB, according to Fred W. Smith, administrator of limitation order L-292.

Declining to disclose what percentage of the base period production would be allocated to the manufacture of milling and baking machinery, Mr. Smith said that it was his personal opinion—although not official—that these essential food industries would be supplied with adequate equipment to care for their needs.

War Food Administration officials have supplied WPB an estimate of the total critical metals which would be required by all food manufacturers for the year beginning Oct. 1 and the requirements committee of the government agencies is now giving consideration to the whole picture, it was said. The problem is to determine just how much of the stockpile shall go to manufacturers of flour mill machinery; how much shall be earmarked for bakery equipment, and what shall go to the other food processing industries which also are very definitely in the war production picture.

WPB will attempt to make its decision known in advance of Oct. 1, Mr. Smith stated, so that manufacturers will be assured of production quotas to date from the first of September. To relieve the uneasiness which is said to be present among some food equipment manufacturers that their supply will be cut to 50% of the average of their output during the years 1939, 1940 and 1941, Administrator Smith reiterated that the 50% estimate was arbitrarily placed in order L-292 so that a definite limitation may be fixed, but this limitation, he added, would be well over the production quotas of the pre-Pearl Harbor period of 1939, 1940 and 1941.

Allen Q. Moore Named to Head Flour Price Section of OPA

WASHINGTON, D. C.—(Special)—Allen Q. Moore, Pillsbury Flour Mills Co., who has been associated with the milling industry since 1928, has been appointed chief of the Flour Section of the Food Price Division of OPA to fill the vacancy made by the promotion of Atherton Bean to acting head of the whole unit, THE NORTHWESTERN MILLER officially learned Aug. 9. Mr. Moore will take over his new duties Aug. 15.

Mr. Moore has been in the milling industry since 1928 when he joined the Pillsbury Flour Mills Co. He has held numerous positions with the company, from the boiler shop upward, and is now regarded as one of the best informed milling and grain men in the industry. He was in charge of the grain department of Pillsbury at Springfield, Ill., from 1929 to 1940, and since September 19 of the latter year has been manager of the Chicago grain office of the company.

He was selected by OPA from a number of candidates for the Flour Price Section as qualified by his business background to fill the position.

OPA is now considering a number of applicants for the feed section post, vacated July 1 by George Montgomery. A practical feed man, OPA indicated, would shortly be named for this position.

Wheat Disappearance Large; Drop in World Output Seen

WASHINGTON, D. C.—The domestic wheat supply for the 1943-44 marketing year is indicated at about 1,400,000,000 bus, which would be 213,000,000 bus below the record supply in 1942-43, according to the United States Department of Agriculture. Stocks of old wheat on July 1 are now tentatively placed at 609,000,000 bus, compared with 632,000,000 in 1942, 385,000,000 in 1941, and 246,000,000 the 1932-41 average. Stocks on farms, in interior mills and elevators, in commercial centers, and Commodity Credit Corp. stocks in transit and in steel and wood bins total 514,000,000 bus. The figure for stocks in merchant mills is tentatively estimated at about 95,000,000 bus.

A total crop of 791,000,000 bus was indicated by the official crop report of July 10. This is 60,000,000 bus above the indication in June and 7% above the 10-year (1932-41) average, but 19% below the near-record crop of 981,000,000 bus produced last year and 16% below the large crop of 943,000,000 bus produced in 1941.

Production of winter wheat in 1943 was estimated at 519,000,000 bus, which is about one fourth less than the 1942 crop and 5.6% below the 10-year average. The acreage of winter wheat being harvested is placed at 33,900,000 acres, or 5.1% less than the 35,700,000 acres harvested last year.

All spring wheat production (including durum) in 1943 was estimated at 272,000,000 bus compared with 278,000,000 bus last year. As now estimated, this year's spring wheat crop is 44% above the 10-year average. The acreage of all spring wheat remaining for harvest is placed at 16,000,000 acres, or 16.1% more than the 13,800,000 acres harvested in 1942.

Durum production at 32,500,000 bus is 27% less than the 44,700,000 bus produced last year, but close to 21% above average. Production of other spring wheat at 239,100,000 bus is the largest since the 240,000,000-bu crop of 1928, and exceeded in only 1927 and 1928. Durum wheat acreage for harvest is 3.5% less than last year while other spring wheat acreage has increased 19.7%.

LARGE PROSPECTIVE DISAPPEARANCE

Disappearance of domestic wheat in 1943-44 is expected to total about 1,150,000,000 bus, consisting of the following approximate distribution, in million bushels: food 535, seed 80, alcohol 150, feed 335, and exports and shipments including some war relief 50. The quantity required in alcohol production (for the manufacture of synthetic rubber and smokeless powder) will depend largely upon the possibility of increasing the use of molasses for this purpose. The prospective supply of corn is small relative to livestock numbers, and wheat will probably continue to be used instead of corn for this purpose. The quantity of wheat which will be fed on farms where grown is tentatively placed at 120,000,000 bus, an increase over the 101,000,000 bus estimated used in 1942-43. If the 215,000,000 bus owned by the Commodity Credit Corp. on July 1 are sold for feed, the total feed item would be 335,000,000 bus. The quantity sold by the corporation in 1942-43 totaled 275,000,000 bus. An allocation as just described would leave about 250,000,000 bus for the carry-over July 1, 1944, which would be adequate to provide working stocks of 125,000,000 bus—75,000,000 as a reserve against small yields and 50,000,000 as our commitment for postwar relief under the International Wheat Agreement. Wheat imports by the Commodity Credit Corp. would be expected to supplement the quantity of domestic wheat for feed, but these may continue to be limited by the tight shipping situation.

FARMERS SELL AT $1.70 BUY AT $1.14

TOLEDO, OHIO.—From Norwalk, Huron county, Ohio, comes the news through Charles Woodward, elevator man, that farmers are selling their low quality soft wheat of this crop around $1.70 bu and are buying government feed wheat, often of higher quality, at $1.14 bu. This is the story of a strange and anomalous situation which puzzles the farmers, but it is indicative of the short crop of soft wheat and its varying quality. Opinion has been expressed that out of estimated 26,000,000 bu crop in Ohio not more than 15,000,000 bus will be suitable for milling flour.

Prospective wheat supplies are ample to take care of likely requirements by classes, except in the case of soft red winter wheat, the supplies of which were short in 1942-43. The soft red winter carry-over is very small and production is 14% below last year and 31% below the 1932-41 average.

WHEAT GOAL RAISED

Wheat and rye acreage goals for 1944 were announced by the War Food Administration on July 13. The wheat goal was set at 68,00,000 acres, which is 26% above the 54,200,000 acres seeded for the 1943 crop but about the same as the 1932-41 average of 68,900,000 acres. In 1937 there were 80,800,000 acres, which was the largest in the history of this country. It was suggested that the acreage of rye for harvest be maintained in areas where rye will produce more food or feed per acre than any alternative crop. This would mean an acreage slightly smaller than the 2,900,000 indicated for the 1943 crop.

A 68,000,000-acre seeding with about average yields per acre would produce a crop of between 800,000,000 and 850,000,000 bus, which would cover the more economic uses, consisting of approximately the following, in million bushels: 540 for food, 120 fed on farms where grown, 80 for seed and 60 for exports. Yields above average would leave quantities available for additional feeding and for alcohol production.

In broad terms, the War Food Administration advised farmers to plant as much wheat as can be grown after reserving sufficient land for expanding more urgently needed crops and without departing from sound farming practices. It was pointed out that planted acreage can be expanded without plowing up land which should be kept in grass if crop land which has been idle during recent years is used and if the cycle of crop rotation on some farms is speeded up. It was further pointed out that the program recognizes that demands for food will be imperative for several years and that sound practices must be followed to insure highest possible yields over a period of years.

The 1944 wheat goal calls for seeding approximately as large an acreage as in the record year of 1937 except in the north central and eastern states, where other crops will contribute more to maximum food output. The wheat goal provides for substantial expansion of acreage in the great plains states, from Montana and North Dakota to Texas; somewhat smaller increases in the Pacific Northwest, and about the same or slightly larger acreages in other areas compared with this year.

Prospects are that the 1943 world wheat production, excluding the U.S.S.R. and China, may be about 12% below the 4,240,000,000 bus estimated for 1942, reflecting a very large reduction in North America offset only in a small part by better prospects for Europe and India. A Canadian crop of about 280,000,000 bus may be produced, assuming the long-time average yield and the official acreage (16,700,000 acres of spring wheat and 600,000 acres of winter wheat). Crop prospects in Manitoba have been well maintained, but the crop in Saskatchewan and Alberta is suffering because of lack of sufficient rain. With a crop of 791,000,000 bus indicated for the United States, the reduction from last year in North America may total about 500,000,000 bus. On the basis of present prospects, European production may exceed that of the past three years but still continue considerably below average. Prospects in England, Turkey and Hungary are reported above average, in Roumania and Bulgaria above average, and in Portugal, Spain, Germany and the occupied countries below average. Some reduction in acreage is forecast for Australia, which may reduce total production for the southern hemisphere below that of last year. Soil conditions in Australia have been variable but in Argentina very satisfactory for seeding and early growth. In Argentina the government recently announced the annulment of the wheat agrements with growers which provided for reductions in wheat acreages and requested growers to increase their acreages. Trade reports indicate that a significant increase in acreage is in prospect this year.

Wheat stocks in the four major exporting countries—Canada, the United States, Argentina and Australia—on July 1, 1943, were about 1,770,000,000 bus. This is 300,000,000 bus above the record reached a year earlier, and almost three times the 10-year (1932-41) average of 651,000,000 bus. It is large enough to take care of normal total world trade for three years. World trade in wheat averaged about 550,000,000 bus a year before the war, and July 1 stocks for Canada alone this year are about 665,000,000 bus. These large stocks in the principal exporting countries have resulted to a considerable extent from the very limited export movement to continental Europe and to the Orient. In these stocks is included an ample reserve for postwar needs, even though domestic consumption in the various exporting countries continues above average. As already pointed out, wheat use in the United States for feed and alcohol will reduce stocks by the end of 1943-44 to fairly normal size. Feed and alcohol use in Canada in 1942-43 has increased domestic use by about 70,000,000 bus, compared with the 1935-38 prewar average; seed use, however, has declined 12,000,000 bus. Disappearance in Argentina and Australia has also been increased to some extent. An Argentine government decree issued July 22 authorized the sale between now and Dec. 31 of about 75,000,000 bus of wheat for fuel use and about 20,000,000 bus for feed. Argentina has virtually no timber, coal or oil, and fuel imports have been cut off by the war.

BULK OF SOY FLOUR PRODUCTION TO GO TO LIBERATED COUNTRIES

WFA Allocated 262,000,000 Lbs to Civilians for Year Ending June 30, 1944—Expect Flour to Be Available on a National Basis Late This Year

WASHINGTON, D. C.—(Special)—Anticipating that the bulk of the soy flour production will be used "for meeting the critical nutritional needs of countries liberated or expected to be liberated by the Allies," WFA has allocated to civilians for the year ending June 30, 1944, 27% of expected production of that food product. WFA estimated that expansion in production will enable the soy flour industry to supply 262,000,000 lbs for civilian use through June 30. About 30,000,000 lbs was used domestically last year.

[This estimate of the amount to be made available for civilian consumption of soy flour agrees fairly closely with earlier estimates referred to in the article about soy flour in America's diet which appears on page 4a, Milling Production Section of this issue of THE NORTHWESTERN MILLER. In that story, WFA officials estimated 500,000,000 lbs would be available for civilian consumption for the 1944 calendar year. The estimate of 262,000,000 lbs is for the year ending June 30, 1944.—Ed.]

"For use here at home," the announcement added, "soy products—both full fat and those from which most of the natural oil has been extracted—will be included in bread, soup powders, maca-

roni, breakfast cereals, and in pancake and similar mixes. Also both types of the products, in the form of flour and grits, will be available for housewives to use, not as substitutes for wheat flour, but as protein fortifiers in breads, cakes, pastry, pancakes, meat loaves and other home-cooked standbys."

Many of these soy-supplemented foods, only now going into large-scale production, are not expected to be available on a national basis for consumers in any quantity until October or November, WFA officials explained. Allocations by quarters contemplate that use of soy products during the first quarter ending Sept. 30 will be "relatively small" as compared with each of the succeeding quarters.

FDA RESENTS CLAIMS IN SOY FLOUR ADVERTISING

WASHINGTON, D. C.—(Special)—FDA has facilitated the acquisition of necessary priorities for critical metals for five manufacturers of soy flour, but in no instance has the government "authorized" the milling of 1,500,000,000 lbs of soy flour and grits during the coming year, it was officially disclosed by Donald S. Payne, chief of this section of the federal food administration.

"We have assisted five firms in acquiring the necessary metals and equipment to convert their existing facilities for the production of soy products for edible purposes," Mr. Payne said. "We also have estimated that a total production of 1,500,000,000 lbs of soy flour will probably be necessary to supply expected demands from occupied territories as the war progresses." Mr. Payne observed that the words "authorized by the government" in advertising of the new packages which will be coming on the market is not accurate nor justified, as the goverment is not ballyhooing any individual manufacturer's product.

Mr. Payne said that certain educational programs to encourage the use of high protein foods have the blessing of the federal agency, and nutritional officials believe that soy flour offers a good medium for bringing additional nutrients to the civilian population.

The five firms which the government has assisted in getting adequate critical materials for conversion of plants from the manufacture of animal feeds to human food include the Glidden Co., of Chicago; the Archer-Daniels-Midland Co. of Minneapolis, with plants at Chicago and Decatur, Ill; the Spencer-Kellogg Co. at Decatur, Ill; the A. E. Staley Mfg. Co. at Decatur, Ill., and the Central Soya Co. at Decatur, Ill.

——BREAD IS THE STAFF OF LIFE——

BUFFALO GRAIN RECEIPTS AHEAD OF LAST SEASON

BUFFALO, N. Y.—Grain shipments to Buffalo are running ahead of last season, although navigation opened later. Up to Aug. 2, 66,293,000 bus were unloaded at the elevators, compared with 42,700,000 a year ago. Five Montreal-type freighters, built at Duluth for the British government, secured through negotiations with government officials at Washington, helped alleviate the shipping shortage. Reports indicate the freighters will be used to haul grain until late fall.

Mandatory Enrichment Creates Contract Problems for Millers

WASHINGTON, D. C.—Should a federal order be enacted requiring all white flour to be enriched, millers will be faced with several problems regarding contracts. In handling these questions that will arise between the miller and his customer, the Millers National Federation makes the following comment:

UNFILLED ORDERS

Unfilled orders will certainly total at least 20,000,000 or 25,000,000 cwts on the date of promulgation. The federation is making every effort to obtain either (a) a provision in the order to require the buyer to pay the seller the cost of enrichment of the flour in the case of unfilled contracts, similar to the provision in the 1933 law imposing processing taxes which permitted the seller to add the tax to unfilled contracts and required the buyer to pay it; or (b) the effective date set forward sufficiently so that most contracts now existing will be ground out, and the federation has stated that six months is the absolute minimum needed for this purpose. This proposition is based upon the fact that sales now on the books were consummated at a time when neither party had any idea that mandatory enrichment would be applied to bakery flour. The adoption of either of the alternative suggestions would not clear up by any means all problems for the mills, but would eliminate most of them, the federation states.

In the event that no action is taken or the relief obtained is inadequate the mills will be faced with a serious and extensive problem with their customers.

FAMILY FLOUR CONTRACTS

The family flour contract, as revised on April 6, 1943, contained the following provision:

"Enrichment of Flour. Unless otherwise specified herein, the flour to be delivered hereunder shall be unenriched flour and the price has been computed accordingly. Enriched flour shall be delivered hereunder if BUYER so directs at or prior to furnishing shipping instructions or if required under any state or federal law or regulation, and in such event it is agreed that BUYER shall pay in addition to the price specified herein, the cost to SELLER of such enrichment. If this contract specifies the delivery of enriched flour, it is understood that the price herein specified is based upon the present federal standards for enriched flour, and if before shipment is made hereunder such standards are changed so as to involve additional cost to SELLER it is understood that BUYER will pay such additional cost of enrichment."

Mills which have adopted this contract form, including the above clause, are fortified as to charging the cost of enrichment to customers above the contract price, the federation points out. There may, however, be some old orders taken before the April contract went into use which remain unfilled. To that extent the mills are not protected. Even so, the family flour situation is much less critical relative to unfilled contracts than is the bakery flour situation, because family flour contracts move out at a rate that should clear up nearly all of the business on the books on Aug. 15 (hypothetical date of the order) before Dec. 25 (hypothetical effective date). There is also the fact that a large share of the family flour is already enriched, although in this case the enrichment contemplated is at present levels. Deliveries made from Oct. 1 will have to be enriched at the new levels which cost roughly twice the present rate of enrichment. There is some possibility that the Oct. 1 date of higher enrichment levels may be postponed.

BAKERY FLOUR CONTRACTS

The situation on existing contracts of bakers flour is pretty much different from what it is on family flour. The volume is very much greater, the period of time for which shipment is made averages much longer and the present contract form for bakers flour (jointly sponsored by the federation and the American Bakers Association) contains no provision like the one quoted above. Until recently it was not supposed that bakers flour might be covered by a mandatory enrichment order and so no consideration was ever given to possible contract revision. Everyone familiar with the bakery trade knows that a considerable percentage of the flour booked by bakers before Aug. 15 will not be delivered until after Dec. 25 and that is why it is so vital that the miller obtain the protection proposed above. The federation sees no other avenue for the miller to obtain help with reference to the cost of enrichment of flour sold before this time, except through one of the two alternatives outlined under the head of "unfilled orders."

NEW CONTRACTS

In the case of sales made after the mandatory enrichment order is promulgated it is up to the miller to take account of his possible obligation as to the enrichment of flour, the federation declares. During the time between the hypothetical dates of Aug. 15 and Dec. 25 he will be selling flour from day to day. Some orders will be shipped long before the date when mandatory enrichment becomes effective, other orders will be shipped after that date and still others may be shipped partly before and partly after. In fact, as a practical matter many orders will be taken during this interim period concerning which neither buyer nor seller will be sure at time of sale when shipment will be made.

In the case of family flour, the enrichment clause in the April 6 contract form affords the miller the necessary protection against assuming enrichment cost. This clause or its general equivalent should be used throughout the interim period.

The bakery flour contract may be amended only by joint action of the two industries. The federation sees no reason, however, why sales may not be made during the time between the date of promulgation and effective date of the order on a basis which would contemplate the addition of enrichment cost to the base contract price if the flour were taken out enriched. This would not be very much different from the practice now followed of writing grade differentials into a sales contract; that is, a sale may be made of standard patent at say $3.50 cwt, with short patent to apply for say 10c more. Thus the miller might sell a given contract unenriched at say $3.50 cwt, with enriched flour to apply against the contract at an additional charge equal to the cost of enrichment. Through some plan of this kind the miller can assure himself of reimbursement for the cost of enrichment if enriched flour is taken out on a contract based on unenriched, the millers' association believes.

After the enrichment order becomes effective, the basis of sale obviously in all cases will be enriched flour. Cost of enrichment will then become merely another cost factor the same as increased wages or any other item which might affect cost. It will then, of course, be unnecessary to make any special provision on contracts entered into after that date, such as is suggested here, the federation adds.

MILLERS NOT LIABLE IF BREAD FALLS SHORT

Flour enriched to the required standards will not be presumed always to produce bread enriched to equivalent standards, and if it fails to do so, there would be no liability upon the baker, nor upon the miller, the Millers National Federation reports after a discussion of the problem with officials of the War Food Administration and the Food and Drug Administration. Several millers, the federation reports, have inquired as to what their liability would be if the bread produced from the enriched flour failed to conform to the enrichment standards for bread. The same principle would apply in the case of blenders' flour or in any other product handled by a secondary processor.

——BREAD IS THE STAFF OF LIFE——

FDA BUYING LIGHT

WASHINGTON, D. C.—(Special)—FDA continued its light buying of cereal grain products over the past week, with no immediate prospect that any considerable increase in government flour buying is in sight. In a special purchase, FDA bought 19,980 lbs of rolled oats, packed in 20-oz tins, 36 packages to a case, f.o.b. Philadelphia from Quaker Oats Co., at 12.47c lb. Commander-Larabee Milling Co. supplied 12,000 lbs of type 1-B hard wheat flour enriched, f.o.b. New York City, for Red Cross account, packed 100 lbs net in bags at $3.99 cwt. Invitations have been issued for 90,000 lbs of army type C biscuits for delivery during September with acceptances to be made Aug. 16.

SOY FLOUR BARRED FROM BREAD IN PROPOSED FEDERAL STANDARD

Wheat Germ Permitted Only in Enriched Loaf Under Definitions and Standards Published by Food and Drug Administration—Several Other Products Prohibited

WASHINGTON, D. C.—Use of soy flour in bread would be prohibited under the proposed definitions and standards of identity issued by the Food and Drug Administration of the Federal Security Agency. Wheat germ would be permitted as an optional ingredient only in enriched bread to the extent of the maximum which "may be present as a result of the use of enriched flour."

The proposed definitions of various breads and rolls, issued Aug. 3, are open to the filing of exceptions up to Aug. 23.

Proposed standards are established for the following varieties of bread and rolls or buns: plain, enriched, milk, raisin, whole wheat, graham and entire wheat, as well as those made with mixtures of flour, whole wheat flour, cracked wheat and crushed wheat. Definitions for cream, butter, egg, honey and milk and honey breads, rolls and buns were considered, but no standards were issued because "evidence does not establish a basis for standards which would be reasonable."

In general the proposed definitions follow the recommendations of the baking industry made at the standards hearings which took place in July and August, 1941, but there are a number of differences, to some of which the American Bakers Association will file exceptions.

The government proposed maximums for several of the ingredients of enriched bread differ slightly from the industry recommendations. The thiamine maximum is slightly lower and the iron, calcium and vitamin D maximums are higher. The minimum levels are closely in line with the enriched flour basis recently adopted by the food and drug agency, with allowance for processing changes. The maximum amounts are considerably in excess of the corresponding amounts that would result from the use of maximum enriched flour, to allow for vitamin and mineral content of other ingredients used by the baker.

The establishment of these standards for enriched bread again raises the question of the baker's responsibility for maintaining enrichment standards, in view of the War Food Administration's proposal to require the use of enriched flour only. WFA is reported to have indicated that, if the exclusive enriched flour proposal is adopted, the baker will not be held liable for the amount of his enrichment. Establishment of these bread standards indicates that, as far as the Federal Security Agency is concerned, the baker is responsible for bread enrichment.

SOY FLOUR FINDING

In discussing the elimination of soybean flour from the list of optional ingredients in bread, the FDA said:

"Products referred to as 'soybean flour,' 'peanut flour' and 'cottonseed flour' were proposed for use in quantities up to three parts per 100 parts of flour. The evidence does not show that any of these products has been used to any material extent in making bread or rolls. These products contain far more protein and less starch than wheat flour. . . . The evidence does not establish that the use of the products results in any significant improvement when the quantities used are not more than three parts to each 100 parts of flour; it does indicate that the inclusion of such products in white bread would run counter to the normal expectation of consumers. The evidence furnishes no basis for a determination as to what quantities of such products should be used with flour to produce such differencese from white bread as would result in different identities recognizable as such by consumers."

The same findings were reported in the case of oat flour, rolled oats and ground oatmeal, which likewise are barred as optional ingredients. Products which are allowed to the extent of 3% based on flour are: corn flour (or finely ground corn meal), potato flour, rice flour, cornstarch, potato starch, sweet potato starch and wheat starch, as well as dextrinized wheat flour. The report said that these products had a history of use in bread and for special purposes such as dusting flour, moisture retainers, etc.

WHEAT GERM RULING

With regard to wheat germ, also prohibited in the proposed standards, the findings were:

"Wheat germ processed in various ways to modify its enzymatic activity and to prevent rancidity has been used as an ingredicnt in some white bread. The processing may consist of heating it, treating it with potassium bromate, removing part of the wheat germ oil, and possibly of treating it in other ways suggested but not described in the record. Such processed wheat germ was proposed as an optional ingredient for the purpose of imparting flavor and improving other characteristics of white bread. No proposal was advanced for recognition of use of unprocessed wheat germ such as that naturally present in small amounts in flour. The testimony as to these benefits from the use of small amounts of wheat germ in white bread (1½ to 2 parts by weight of processed wheat germ per 100 parts by weight of flour) is not convincing. On the other hand, there was evidence establishing that the use of processed wheat germ in white bread has led to labeling and advertising claims based on its vitamin and mineral content, such as would likely confuse consumers with respect to identity and relative nutritive properties of bread and enriched bread."

Enzyme active, ground, dehulled soybeans, with or without removal of oil, are permitted to the extent of 0.5 part per 100 parts of flour. The use of such product for bread bleaching purposes has been practiced for more than 10 years, the findings said.

Other products which would not be permitted in bread under the proposed standards are: cream, sweetened condensed partially skimmed milk, brown sugar (other than "light colored" brown sugar), and nondiastatic malt syrup (except nondiastatic dried malt syrup). Amino acids also are barred from use in bread, as well as a product described as "grain infusion," a concentrated corn steepwater with several ingredients added.

The proposed definitions also provide for the use of vinegar, monocalcium phosphate, calcium propionate and sodium propionate and sodium diacetate, but the bread label must bear the statement ".....added to retard spoilage," the blank being filled in with the name of the ingredient.

ENRICHMENT STANDARDS

The standard of enrichment for enriched bread and rolls or buns is proposed as follows (in mg per lb):

	Minimum	Maximum
Thiamine	1.1	1.8
Niacin	10.0	15.0
Riboflavin	.7	1.6
Iron	8.0	12.5
Calcium (optional)	300.0	800.0
Vitamin D (optional)	150*	750*

*U.S.P. units per pound.

MILK BREAD

The definition of milk bread and rolls or buns differs somewhat from that proposed by the baking industry. The dividing line between bread and milk bread is 8.2% of milk solids based on the flour. Buttermilk is not permitted in milk bread.

The raisin bread definition provides that not less than 50 parts by weight per 100 parts of flour be seeded or seedless raisins. Water extract of raisins may be used, but not the replace raisins.

Whole wheat, graham and entire wheat products may have no other flour but whole wheat.

Following is the definition of white bread and rolls or buns:

Bread and rolls or buns; identity; label statement of optional ingredients. (a) Each of the foods, bread and rolls or buns, is prepared by baking a kneaded yeast-leavened dough made by moistening flour with water, or with one or more of the liquid optional ingredients hereinafter specified, or with any mixture of water and one or more of such ingredients. (The term "flour," unqualified, as used in this section includes flour, bromated flour and phosphated flour. The potassium bromate in any bromated flour used and the monocalcium phosphate in any phosphated flour used shall be deemed to be optional ingredients in the bread or rolls.) Each of such foods is seasoned with salt, and in its preparation one or more of the optional ingredients prescribed by the following subparagraphs (1) to (12), inclusive, may be used:

(1) Shortening.

(2) Milk, concentrated milk, evaporated milk, sweetened condensed milk, dried milk, skim milk, concentrated skim milk, evaporated skim milk, sweetened condensed skim milk, dried skim milk, or any combination of two or more of these; except that any such ingredient or combination (together with any butter and cream used) is so limited in quantity or composition as not to meet the requirements for milk or dairy ingredients prescribed for milk bread.

(3) Buttermilk, concentrated buttermilk, dried buttermilk, sweet cream buttermilk, concentrated sweet cream buttermilk, dried sweet cream buttermilk, or any combination of two or more of these.

(4) Liquid eggs, frozen eggs, dried eggs, egg yolks, frozen yolks, dried yolks, egg white, frozen egg white, dried egg white, or any combination of two or more of these.

(5) Sugar, invert sugar (in congealed or syrup form), light colored brown sugar, refiners' syrup, dextrose, honey, corn syrup, dried corn syrup, nondiastatic dried malt syrup, molasses (except blackstrap molasses), or any combination of two or more of these.

(6) Malt syrup, dried malt syrup, malted barley flour, malted wheat flour, each of which is diastatically active, or any combination of two or more of these.

(7) Corn flour (including finely ground corn meal), potato flour, rice flour, wheat starch, cornstarch, potato starch, sweet potato starch, any of which may be wholly or in part dextrinized, dextrinized wheat flour or any combination of two or more of these; but the total weight thereof is not more than three parts for each 100 parts by weight of flour used.

(8) Ground dehulled soybeans, which may be heat treated, from which oil may be removed, but which retain enzymatic activity; but the weight thereof is not more than 0.5 part for each 100 parts by weight of flour used.

(9) Calcium sulfate, calcium lactate, mono-ammonium phosphate, diammonium phosphate, ammonium sulfate, ammonium chloride, ammonium carbonate, ammonium lactate, monocalcium phosphate, dicalcium phosphate, or any combination of two or more of these; but the total weight thereof (not including the monocalcium phosphate in any phosphated flour used) is not more than 0.25 part for each 100 parts by weight of flour used.

(10) Potassium bromate, potassium iodate, calcium peroxide, ammonium persulfate, potassium persulfate, sodium chlorite, or any combination of two or more of these; but the total weight thereof (including the potassium bromate in any bromated flour used) is not more than 0.0075 part for each 100 parts by weight of flour used.

(11) (i) Monocalcium phosphate, but the total quantity thereof, including the quantity in any phosphated flour used and any quantity added as permitted by subparagraph (9), is not less than 0.25 part and not more than 0.75 part by weight to each 100 parts by weight of flour used; or (ii) a vinegar, in a quantity equivalent in acid strength to not more than 1 pint of 100-grain distilled vinegar for each 100 pounds of flour used; or (iii) calcium propionate, sodium propionate, or any mixture of these, but the total weight thereof is not more than 0.32 part for each 100 parts by weight of flour used; or (iv) sodium diacetate, but the weight thereof is not more than 0.4 part for each 100 parts by weight of flour used.

(12) Spice (including spice oil and spice extract). Each of such foods contains not less than 62% of total solids as determined by the method prescribed in "Official and Tentative Methods of Analysis of the Association of Official Agricultural Chemists," Fifth Edition, 1940, page 229, under "Total Solids in an Entire Loaf of Bread—Official," except that, if the baked unit weighs one pound or more one entire unit is used for the determination, and if the baked unit weighs less than one pound, such number of entire units as weigh one pound or more are used for the determination.

(b) Bread is baked in units each of which weighs ½ pound or more after cooling. Rolls or buns are baked in units, each of which weighs less than ½ pound after cooling.

(c) (1) When any optional ingredient, except a vinegar, permitted by paragraph (a) (11) is used, the label shall bear the statement "..... added to retard spoilage," the blank being filled in with the name whereby the ingredient used is designated in such paragraph.

(2) When an optional ingredient permitted by paragraph (a) (12) is used, the label shall bear the statement "spiced" or "spice added" or "with added spice"; but in lieu of the word "spice" in such statements the common or usual name or names of the spice may be added.

(3) Wherever the name of the food appears on the label so conspicuously as to be seen under customary conditions of purchase, the words and statements hereinbefore specified in this paragraph shall immediately and conspicuously precede or follow such name, without intervening written, printed, or graphic matter.

The American Bakers Association has announced that it plans to file exceptions to most of the points in the proposed standards which differ from the original recommendations of the baking industry. Briefs may be filed up to Aug. 23 with the Hearing Clerk, Federal Security Agency, Office of the Assistant General Counsel, Room 2212, South Building, 14th and Independence Avenue, Washington, D. C.

HOME BAKING INQUIRY

WASHINGTON, D. C.—Possibility of a congressional investigation by the Truman committee of the decline in home baking as a result of the rationing of fats is reported. This Senate committee, which has investigated several phases of wartime conditions, is reported to be studying flour sales records, with the possibility of investigating the claim that OPA's system of distributing fats has discouraged home baking and forced home bakers to turn to commercial bakeries.

Quite So

WASHINGTON, D. C.—The Office of Price Administration, which recently embarked on a policy of simplifying its regulations, has amended a section of an order establishing maximum prices on certain bakery products to read as follows:

"All commodities listed in Appendix A are those known to the trade as such, excepting therefrom such thereof, if any, while subject to another regulation."

CORN MOVEMENT GAINS AS GUARANTEE ENDS

Relatively Heavy Sales Made by Farmers on Last Effective Days of Government Offer

CHICAGO, ILL.—A relatively heavy flow of corn to midwestern markets occurred on Aug. 9 and 10, the last two days in which farmers could sell the grain and get the advantage of any increase in the ceiling between now and Oct. 1. Local handlers reported that purchases on a "to arrive" basis expanded to more than 1,000,000 bus on Aug. 9, the largest for a single day in many months. This followed purchases of more than 1,500,000 bus last week.

Most of this corn undoubtedly is going to corn processors, but many traders believed that some of it, at least, would be diverted to commercial feed manufacturers, who are last on the government priority list. Such a diversion would reduce somewhat the demand for oats and rye from the commercial feed interests. Feed manufacturers seemed to be of the opinion that they would get more corn after the guarantee expired, but that the grain would still be tight if the government extended its agreement.

A good movement of oats is reported to be getting under way in the Northwest. Primary receipts on Aug. 9 were 1,535,000 bus, compared with 722,000 bus a year ago.

Procedure for Corn Users to Obtain Grain Is Amended

WASHINGTON, D. C.—(Special)—WPB has issued a supplement to General Operations Circular 123 which established procedure under which industrial users were to apply for corn allotment ordered by WPB from requisitioned elevator stocks. The new instructions set up a calendar of essentiality based on inventory limitations and require fuller information on the certification which industrial users file in making application.

The new certification requires that the name, order number of regular supplier and orders placed and promises of delivery made be noted on the application and orders placed with others than the regular supplier.

Inventory categories which determine the essentiality of the commercial user are as follows: A-1 industries have a six-week inventory limitation; A-2 industries obtain a four-week inventory limit, and B industries are those which require two-week inventories.

Inventory is defined as meaning stocks on hand, not in process, including transit stocks, plus stocks of substitutes. Only plants whose inventories do not exceed the foregoing can be certified.

——BREAD IS THE STAFF OF LIFE——

SON OF CANADIAN MILLER DIES IN OVERSEA ACTION

TORONTO, ONT.—Lt. Edward M. MacLachlan, son of D. C. MacLachlan, president of Maple Leaf Milling Co., Ltd., Toronto, was killed in oversea action on July 15. Lt. MacLachlan was 23 years old. He was with the 48th Highlanders, 1st Canadian Division. No word previously had been received from him since he left for operations in Tunisia. He was one of three brothers in oversea service. Capt. Graham MacLachlan of the Royal Regiment of Canada, now is on the general staff of the Canadian army, and Lt. Campbell MacLachlan, R.C.N.V.R., loaned to the Royal Navy, is on operations out of Malta with motor torpedo boats. A younger brother, David, is at home. Lt. Edward MacLachlan was an all-round athlete. He played football, hockey and cricket, and took a prominent part in gymnastics at Ridley College. He was a member of the Toronto Cricket Club.

Mills Await Soft Wheat Price Curb; Parity Rise Boosts Base

WASHINGTON, D. C.—With a parity rise adding 1c to the prospective ceiling price, soft wheat millers continue to hope for early announcement of an OPA ceiling on soft red winter wheat, which has been reported to be awaiting only final clearance from OPA officials. With soft red winters selling at 11@12c bu above the basis on which flour ceilings are established, mill business is dragging along on a very slow basis, with only occasional sales being made in small lots.

Millers expect the ceiling announcement at any time, and look for a "roll back" of current soft red winter wheat prices to an approximate parity basis. While this will not re-establish the level that prevailed when the soft wheat flour ceilings were raised last February, because of parity changes since, it will restore some balance between wheat prices and flour ceilings.

Continued rise in wheat parity, which put the level up 1c to $1.46 for July, will necessitate a similar upward revision of the prospective ceiling over soft wheat, OPA has indicated. Originally planned at $1.62 bu, Chicago, basis, the control order now probably will be based on $1.63.

At the moment no ceilings are contemplated on hard wheats, nor on Pacific Coast soft wheats. OPA is now revising upward the flour ceilings applicable to Pacific Coast flours in middle western and eastern markets, to bring them into line with the advance granted central states soft wheat millers last February.

——BREAD IS THE STAFF OF LIFE——

BOXCAR SHORTAGE GROWS

MINNEAPOLIS, MINN.—The movement of old crop grains to terminals in the Northwest is being hampered by a growing car shortage. Railroads say their country agents report that farmers and elevators are pleading for empties to get this grain out of the way and make room for the new crop. With weather unsettled and more combines being used, a lot of damp grain will be forced on the market, for fear of spoilage.

BAKERS' SUGAR QUOTA INCREASED 10% FOR AUGUST-OCTOBER PERIOD

Basis of 80% of 1941 Consumption Made Retroactive to Aug. 1—Expected to Result in Increased Bakery Products Production—Corn Products Replacement Also Eased

WASHINGTON, D. C.—The long expected action in increasing bakers' sugar quotas was taken by the Office of Price Administration Aug. 9, when industrial users of sugar were granted a 10% increase in sugar allotments, retroactive to Aug. 1. The new basis is 80% of the corresponding 1941 consumption, but there is some question about the full allotment for sweet goods.

When bakers apply for their September-October sugar allotments Aug. 15 they will be entitled to make application for the additional 10%.

A committee of the American Bakers Association was scheduled to meet with OPA rationing officials, Aug. 10, to determine in just what form the additional allotment will be distributed. The bakers' committee had understood that the OPA was disposed to apply a differential rationing plan by which the additional sugar must be routed into products that require the least percentage of sugar. The reported plan was for bread to be allotted 100% of the increased amount, while cakes, cookies and other sweet goods could use only 80%. The bakers take the position that if 80% of the 1941 use of sugar is available to all industrial users, no dictation should come from OPA's rationing section as to what end uses are made of the extra amount by the baking industry.

While the increase is less than desired by bakers and less than the 85% basis recommended several months ago by the War Food Administration, the increase will be of considerable help to the baking industry and probably will result in an enlarged bakery products output, since sugar recently has been the most limiting production factor.

OPA said that heavy receipts of sugar from the Caribbean area in July, plus improved shipping prospects, made the increase possible. It was said to be OPA's policy to ease rationing restrictions "whenever the supply situation permits." A similar increase was allowed from July through October last year, but was revoked at the end of that period. OPA said it hoped the new increase could be continued indefinitely.

Helpful relief for the baker's sugar problem also came from another OPA order revision last week, when allotments of cane sugar to replace unobtainable corn sugar were increased to 65% of the amount of corn sugar used in the corresponding period of 1942 and 55% of the amount of corn syrup. The new percentages apply to all bakery products.

Previously bakers were allowed 50% for bread and similar type products and 25% for other goods.

The OPA issued the following instructions for applications for corn products replacements:

Application is made on OPA Form R-315 and is filed either with the local board having jurisdiction over the place where the applicant's principal business office is located or with the board at which other records are already on file.

Application for the July-August allotment may be made on or before Aug. 20, 1943; application for the September-October allotment must be made during the month of September.

In addition to the information called for on Form R-315, applications must supply the following information:

1. The number of pounds of corn sugar and corn syrup used during the corresponding period of 1942.

2. The number of pounds used during the corresponding period of 1942 in products delivered to exempt agencies.

3. The number of pounds used by the industrial user from the start of the period prior to the date of application.

4. The number of pounds on hand at time application is made.

Before an application is granted, the applicant must agree to report to his local board the amount of corn sugar or corn syrup obtained between the time of application and the end of the allotment period for which it was granted, and any other information the board may request.

Instructions provide that emergency allotments already granted by the district or regional offices before the effective date of today's order will be deducted from any allotment granted by the local board.

Adjustments will be made in subsequent sugar allotments for any corn sugar or corn syrup received after the approval of the replacement allotment.

Procedure for this adjustment will depend on whether the industrial user is a registering unit that used sugar in 1941 or is a new industrial user. Adjustment will also be made for any unused sugar from these allotments which an industrial user has on hand at the end of any allotment period.

Relief Food

WASHINGTON, D. C.—(Special)—American flour and wheat, and other foods, valued at $10,000,000, brought substantial relief to Greece after the invasion by the Germans and Italians, the Greek Ambassador told an audience here in expressing his nation's gratitude. The large scale food shipments were credited with "saving the very life of the Greek nation" by the diplomat. Twenty-six trips were made by eight relief ships from the United States and Canada, carrying 5,882,890 bus wheat, 94,400 lbs flour and quantities of dried and dehydrated vegetables and other edibles. There has been a noticeable improvement in the health and demeanor of the Greek people since the flow of relief food has been in progress, the officials said.

——BREAD IS THE STAFF OF LIFE——

ARMY HELPS ON GRAIN HARVEST

Assignment of 5,000 soldiers to assist North Dakota farmers with the harvest has been approved by the War Department in response to urgent requests by Governor John Moses. It is understood the soldiers are to start work in the state immediately, with additional thousands requested and expected to arrive in time for harvest.

FLOUR BUYERS CONTINUE TO BOOK CONSISTENTLY FOR SMALL AMOUNTS

Total Business Represents Fair Amount—Bakers Keeping Flour Stocks High—Soft Winter Wheat Flour Sales Checked by Ceilings

Flour buyers are clinging to a policy of staying well booked and, although sales are not large, the sum total of the one- and two-car lot orders represent a fair amount of business. Millers are ready sellers at the moment and buyers are well aware that only a slight change in circumstances could make offerings scarce. As a matter of fact, no rush of bookings is expected this year in view of the large amount of flour already on the books.

A large chain baker was in the Kansas City market last week and booked about 500,000 sacks, for use in the first quarter of next year. Outside of that one sale, however, business was rather slow and total sales averaged but 54% of capacity, compared with 108% in the week preceding and 42% in the corresponding period a year ago. Most of the trade, millers report, is well supplied and is taking only small amounts to keep stocks up.

In the Northwest, sales last week averaged 65% of capacity, compared with 104% in the previous week and 69% in the similar week a year ago. Bookings were small and well scattered. Clears are still in very active request, with prices holding very firm. Millers are looking for shipping directions to cut down the thick backlog of orders.

Demand and sales were light at Buffalo but interest is reported to be very high. Bakers are anticipating a heavy fall business and considerable flour volume may develop when the market situation clarifies somewhat. Directions are reported as being good from all branches of the trade.

In the soft winter wheat area, sales are stymied by prevailing wheat prices. Offerings are nil with millers unable to do business under current ceilings. At Chicago interest dwindled. Sales are scattered and in small amounts.

On the Pacific Coast, a fair amount of new business developed with the military booking small amounts. Wheat prices are still too high for millers to do business. Smaller buyers are taking anything that millers have to offer, larger buyers are said to be fairly well protected.

PRODUCTION

Flour production last week showed little change as compared with the preceding week, with total output of the mills reporting to THE NORTHWESTERN MILLER, which account for 67% of the total production of the United States, amounting to 3,027,897 sacks (cwt). A week ago production was 3,070,200 sacks and in the corresponding week a year ago 2,684,537. Two years ago the figure was 2,431,386 sacks and three years ago 2,442,034. Compared with the preceding week, the Southwest milled 71,000 sacks less and the central and southeastern states 49,000. The Northwest produced 57,000 sacks more, Buffalo 3,000 and the north Pacific Coast 17,000. Complete details of production by various sections are shown in the table on the opposite page.

CCC BUYS CANADIAN WHEAT FOR NORTHEAST

WASHINGTON, D. C.—(Special)—CCC's Chicago office has bought 2,900,000 bus of No. 3 Manitobas, basis on cars at Duluth, and the bulk of the supply will be made available to the eastern area for feed wheat, CCC headquarters disclosed Aug. 10. The wheat was bought in two lots and deliveries are already being made, it was said. Some of the wheat may be routed to the Kansas City areas, but the bulk will go to the central east and northeast regions. It was pointed out that Kansas City and Minneapolis have been filling most of Chicago's orders and this new purchase will largely be distributed direct by the Chicago CCC.

FEEDSTUFFS SITUATION UNIMPROVED —NEW OFFERINGS SCANT

Urgency in Demand for Supplies of All Kinds Increases as Pastures Dry—Price Index Advances Sharply

The general feedstuffs situation continues unimproved with all items on the feed list either extremely scarce or unobtainable. The urgency in the demand for supplies of any and all kinds of feed is becoming intensified as pasture grasses dry and green feeds become less abundant. The situation has developed an unusually widespread demand for hay and the movement of alfalfa and prairie hay is of record proportions. Increase in ceiling prices of oil seed meals is reflected in 10½ points advance in the index of wholesale feedstuffs for the country as a whole, the new figure being 187.4, compared with 176.9 for the previous week and 158.3 for the corresponding week last year.

Many mills which reported a week or two ago that they were gradually getting caught up on old bookings again find themselves behind in filling existing contracts due to a large influx of mixed car orders. Demand for ground grain feeds continues unabated but offerings are sparingly made since grinders have their capacity well booked ahead.

Millfeed production made further gains with an indicated output of 82,800 tons, compared with 78,800 tons for the previous week and 82,700 tons for the corresponding week last year.

Cutting of flax is starting at many northwestern points and receipts of new crop flaxseed should be liberal toward the end of August. Linseed crushers will then again operate at capacity and some offerings of linseed meal will likely be available at that time. Crushers are already faced with an urgent demand and can book unlimited amounts at the new ceiling price. There is no material change in the wheat feed situation.

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FLOUR MILLS OF AMERICA RE-ELECTS ALL OFFICERS

KANSAS CITY, MO.—Stockholders and directors of the Flour Mills of America, Inc., held their meetings in Kansas City, Aug. 4, re-electing all officers of the company and its subsidiaries.

E. P. Mitchell is president, with W. R. Duerr vice president and manager of Kansas Flour Mills Co; L. C. Chase, vice president and manager of Valier & Spies Milling Co., St. Louis; K. P. Aitken, vice president and manager of Alva (Okla.) Roller Mills. T. A. O'Sullivan is vice president and manager of the grain department and O. J. Spaulding is secretary and treasurer.

Besides Mr. Mitchell, the other members of the board, all re-elected, are Thornton Cooke, Milton McGreevy, Arthur L. Mullergren, Edgar Shook and Fred C. Vincent, all of Kansas City, and Ralph W. Hoffman, Enterprise, Kansas.

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REPRESENTATIVE OF H. K. PORTER CO.

F. B. Schwartz, manager of the Minnesota Pneumatic & Electric Tool Co., Minneapolis, has been appointed special representative for the Northwest for the complete line of products of the H. K. Porter Co., Inc., manufacturer of chemical processing equipment, pumps and other heavy industrial equipment.

WHEAT PRICES HOLD RELATIVELY STEADY

CCC Purchases Buoy Market Slightly—Harvesting Moves Northward With Crop in Good Condition

Wheat futures prices are holding relatively steady as trading influences of importance are lacking. Factors of a buoyant character late last week were acknowledgment by the CCC of purchases of 2,500,000 bus of commercial wheat in Minneapolis and Duluth at prices equivalent to loan levels, and encouraging war developments as indicated by the succession of allied victories in all theaters of war.

Harvesting of winter wheat has been practically completed except in the more northern regions and threshing is active as far north as the southern lake area. Cutting of spring wheat has begun in southern Minnesota and southern North Dakota with the crop in generally good condition.

No important change has occurred in the rust situation in the spring wheat area and much of the crop is becoming sufficiently mature to prevent further rust damage. It appears, therefore, that there is now little likelihood of any serious or widespread damage. Stem rust appears to be more prevalent on oats than on wheat in northern Minnesota and in North Dakota. The damage in general, however, will be slight on oats.

In the Canadian prairie provinces further deterioration of spring wheat has occurred in Saskatchewan and Alberta as a result of high temperatures and insufficient moisture. Late crops in Manitoba are also showing the effects of moisture deficiency. Drouth stricken southeastern Alberta suffered further damage but crop conditions in other sections of the province are still fairly promising.

DURUM WHEAT USE IN 1942-43 LARGEST ON RECORD

Total Supplies for 1943-44 Substantially Less Than Year Ago—Prospects for Crop of Good Milling Quality Appear Favorable

Total supplies of durum wheat in the United States for the 1943-44 season are expected to be about 62,000,000 bus, compared with 80,182,000 bus the year before, the semi-annual durum report of the War Food Administration states. The carry-over of durum wheat on July 1, 1943, was 28,366,000 bus, which together with a prospective 1943 crop of 33,459,000 bus gives a total supply for the 1943-44 season of 61,825,000 bus.

Stocks of old grain on hand July 1, 1943, were held in the following positions: on farms, 13,071,000 bus; in interior mills and elevators, 6,357,000 bus; in commercial storage, 2,497,000 bus; and on hand at merchant mills, 6,441,000 bus, or a total of 28,366,000 bus. On July 1, 1942, the carry-over was 34,677,000 bus, while the 1942 crop supplied 45,505,000 bus.

Utilization of durum wheat in the United States during the 1942-43 season (July through June) amounted to 52,285,000 bus, the largest on record. This is 7,000,000 bus more than was provided by the bumper 1942 crop, and exceeds by 19,000,000 bus the crop in prospect for 1943, based on the July estimate. Mill grindings accounted for 23,880,000 bus, which is by far the largest year's grind since records on the subject have been kept. An increased domestic consumption of durum wheat products was supplemented by large government purchases of semolina for shipment under lend-lease and other programs. Seed requirements took 2,935,000 bus, while 25,470,000 bus were diverted to feed and other use. The large quantity used for feed reflected the shortage of feedstuffs and feed grains and the extensive use made of wheat for feed during the past year.

The active demand which prevailed for durum wheat for feed purposes kept prices on the low grades relatively strong and had a tendency to hold premiums on the better milling qualities

to narrow limits. Throughout most of the season hard amber durum of good to choice milling quality brought only 5@8c bu more than the lower qualities and grades, including red durum.

The 1943 durum crop is now reaching maturity and prospects for a crop of good milling quality appear quite favorable at this time. Trade reports, however, are not uniformly good. Hot weather caused blight damage in a few localized areas, and at the time of this writing scattered trade reports indicate that black tip fungus, which caused so much damage to the 1940 durum crop, is again in evidence in some sections, the FDA survey concludes.

——BREAD IS THE STAFF OF LIFE——

ACTIVITY LACKING IN BURLAP BAG TRADE

Action Expected Soon on Program Submitted to Government—Quotas Lifted on Multi-wall Paper Bags

NEW YORK, N. Y.—The burlap trade looks to the government for Sept. 1 as the date they hope to begin the program submitted by the industry and expects that the trade advisory committee will be called in very soon to discuss its provisions. Extremely heavy shipments on the recent purchase are reported afloat and some of the August contracts have also been shipped which would indicate interest by the government in moving material rapidly, and should lead to heavy arrivals within a reasonable period. Until this time and until details are agreed upon for handling governmental purchases, activity is lacking.

Sales of cotton goods for bag manufacturers moved in substantial volume. Supplies were appreciably easier and were believed to reflect lessened official buying, and manufacturers reported a strong demand from agricultural interests with pressure for deliveries.

The War Production Board has announced the lifting of all production quota restrictions on multi-wall paper bags, originally imposed by Conservation Order M-241. At the same time, control is retained over pulp allocation so that manufacturers of these bags will receive high grades of pulp, while other papers less subject to strain, and less critically used, will use lower grades of basic materials. The demand by millers continues heavy, but these developments indicate that they can be met promptly in increasing quantity.

Bemis Bro. Bag Co.'s cotton goods index, a composite figure reflecting wholesale prices of principal cotton cloth used in bag making expressed in cents per yard of cloth, is 8.00 as compared with 8.00 a year ago. The Bemis composite figure reflecting duty paid early shipment prices of heavy and lightweight Calcutta burlap expressed in cents per lb of cloth is 17.44 as compared with 16.09 a year ago.

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"PURELY VOLUNTARY" FOOD PROGRAM WANTED

Food Administrator Jones Says Job Should Not Be Attempted by Directives from Washington

WASHINGTON, D. C.—Successful culmination of the vast food program of the United States is a job for "purely voluntary" teamwork by the people, rather than a task that should be attempted by "directives from Washington." This was the statement made in a radio address Aug. 9 by Marvin Jones, War Food Administrator.

The administrator, who has said previously that he plans no 1944 crop controls except on tobacco—no acreage allotments, no marketing quotas and no benefit payments for compliance with control—told his radio audience:

"This country is too broad, too far flung, too varied in its production to have the work done by directives from Washington.

"We can only assist; we must rely largely upon state, county and community organizations of real people who have builded America and are in a position to save America and her institutions, all of which are at stake in the conflict with which we are now faced."

Food must be produced in the "far stretches of this great and fertile country," he continued, and not in the streets of the Capital.

Judge Jones said that every farmer, livestock grower, every producer of every character, including victory gardeners, must join in getting essential production, while processors, wholesalers and retailers must join to bring about proper distribution.

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Rye Flour Output

Following is the rye flour output reported to the Northwestern Miller by mills at Chicago, Minneapolis and outside points in the Northwest, in sacks (cwts), with comparative figures for the previous weeks:

	Week ending July 24	July 31	Aug. 7
Four mills	39,768	42,510	37,762

Current Flour Production

An Exclusive Statistical » » » Readers of The for More Than » » » — About the Same — **Service Maintained for Northwestern Miller Half a Century » » »**

WEEKLY FLOUR PRODUCTION, IN SACKS (CWT)

(Reported by mills producing 67% of the flour manufactured in the U. S.)

	Aug. 7, 1943	Previous week	Aug. 8, 1942	Aug. 9, 1941	Aug. 10, 1940
Northwest	*678,843	621,993	586,247	530,578	527,685
Southwest	1,094,440	1,165,019	977,789	996,423	893,147
Buffalo	434,138	431,039	387,864	378,552	351,591
Central and Southeastern	†521,971	570,852	414,750	373,233	404,162
North Pacific Coast	298,505	281,297	317,887	152,600	265,449
Totals	3,027,897	3,070,200	2,684,537	2,431,386	2,442,034

*Partly estimated. †Incomplete.

	Percentage of activity					Crop-year flour production July 1 to	
	Aug. 7, 1943	Previous week	Aug. 8, 1942	Aug. 9, 1941	Aug. 10, 1940	Aug. 7, 1943	Aug. 8, 1942
Northwest	64	59	54	48	47	3,388,783	3,166,125
Southwest	79	84	70	72	64	6,026,668	5,509,339
Buffalo	75	76	67	64	61	2,359,780	2,145,135
Central and S. E.	72	69	61	57	62	2,869,103	2,214,979
N. Pacific Coast	72	75	80	38	63	1,322,621	1,757,899
Totals	73	74	64	60	59	15,966,955	14,793,477

THE SOUTHWEST

	Weekly capacity	Flour output	Pct. activity
Aug. 1-7	814,380	695,795	85
Previous week	814,380	736,151	90
Year ago	814,380	595,195	73
Two years ago	814,380	564,129	69
Five-year average			70
Ten-year average			71

Kansas City

Aug. 1-7	352,800	218,408	62
Previous week	352,800	241,312	68
Year ago	352,800	219,369	62
Two years ago	352,800	258,471	73
Five-year average			68
Ten-year average			75

Wichita

Aug. 1-7	111,132	85,787	77
Previous week	111,132	91,258	82
Year ago	111,132	73,561	66
Two years ago	111,132	84,453	76

Salina

Aug. 1-7	109,956	94,450	86
Previous week	109,956	96,298	88
Year ago	109,956	89,664	80
Two years ago	109,956	89,370	81

PACIFIC COAST

Principal mills on the North Pacific Coast:

Seattle and Tacoma District

	Weekly capacity	Flour output	Pct. activity
Aug. 1-7	269,100	196,829	73
Previous week	221,100	165,981	71
Year ago	256,368	205,457	80
Two years ago	265,776	93,421	36
Five-year average			67
Ten-year average			63

Portland District

Aug. 1-7	143,200	101,676	71
Previous week	143,200	115,316	81
Year ago	143,864	112,430	79
Two years ago	146,608	59,178	40
Five-year average			69
Ten-year average			71

THE NORTHWEST

Principal interior mills in Minnesota, including Duluth, St. Paul, North Dakota, South Dakota, Montana and Iowa:

	Weekly capacity	Flour output	Pct. activity
Aug. 1-7	738,822	422,371	57
Previous week	738,822	396,501	53
Year ago	738,822	389,616	53
Two years ago	763,518	333,949	44
Five-year average			47
Ten-year average			48

Production for current week was partly estimated.

Minneapolis

	Weekly capacity	Flour output	Pct. activity
Aug. 1-7	319,284	256,472	80
Previous week	319,284	224,992	73
Year ago	353,388	196,631	56
Two years ago	351,036	191,337	55
Five-year average			54
Ten-year average			52

CENTRAL AND SOUTHEASTERN

Mills in Illinois, Ohio, Michigan, Indiana, Kentucky, North Carolina, Tennessee, Virginia, Georgia and eastern Missouri:

	Weekly capacity	Flour output	Pct. activity
Aug. 1-7	*719,358	521,971	72
Previous week	831,088	570,852	69
Year ago	677,846	414,750	61
Two years ago	651,151	373,233	57
Five-year average			61
Ten-year average			62

Current week partly estimated.
*Including mills not previously reporting.

BUFFALO

	Weekly capacity	Flour output	Pct. activity
Aug. 1-7	577,416	434,138	75
Previous week	577,416	431,039	76
Year ago	577,416	387,864	67
Two years ago	568,008	378,552	64
Five-year average			68
Ten-year average			70

MILLFEED OUTPUT

Production of millfeeds, in tons, for the current and prior two weeks, together with season totals of (1) all mills of Nebraska, Kansas and Oklahoma and the cities of Kansas City and St. Joseph; (2) all mills of Minnesota, North and South Dakota and Montana, including Minneapolis, St. Paul and Duluth-Superior; (3) mills of Buffalo, N. Y. (computed from operation reports made to The Northwestern Miller by more than three fourths of the flour milling capacity of the territories included):

	Southwest		Northwest		Buffalo		Combined	
	Weekly production	Crop year to date	Weekly production	Crop year to date	Weekly production	Crop year to date	Weekly production	Crop yr. to date
Aug. 1-7	26,517	158,037	13,636	74,646	8,306	49,371	48,459	282,054
Previous week	28,171		12,623		8,247		49,041	
Two weeks ago	26,470		13,704		7,871		48,045	
1942	23,564	141,932	11,382	65,769	7,421	43,679	42,367	251,380
1941	23,771	141,130	10,171	65,658	7,243	41,707	41,185	248,495
1940	21,339	130,641	10,373	60,366	6,727	41,160	38,439	232,167
1939	22,958	131,965	11,122	64,295	7,479	42,298	41,559	237,819
Five-yr. average	23,430	140,895	11,337	66,174	7,435	43,643	42,202	250,685

UNITED STATES VISIBLE GRAIN SUPPLY

Visible supply of grain in the United States, as compiled by the secretary of the Chicago Board of Trade, in bushels (000's omitted), of date Aug. 7, and corresponding date of a year ago:

	Wheat		Corn		Oats		Rye		Barley	
	1943	1942	1943	1942	1943	1942	1943	1942	1943	1942
Baltimore	2,200	7,483	73	339	21	7	89	103	3	1
Buffalo	5,366	6,543	848	7,116	1,576	113	3,766	3,590	1,728	54
Afloat	..	116	..	..	..	..	..	..	..	..
Chicago	5,915	10,640	378	13,940	1,714	967	8,403	3,991	1,113	259
Afloat	..	..	..	187	..	..	..	134	..	..
Detroit	..	130	..	2	..	..	..	285	..	125
Duluth	31,275	31,538	..	4,637	127	15	2,147	1,469	1,785	79
Fort Worth	12,610	14,144	69	91	115	96	76	5	99	21
Galveston	5,692	3,295	..	16	..	..	..	..	..	..
Hutchinson	10,660	12,031	..	..	..	..	..	..	..	..
Indianapolis	2,012	1,529	1,037	1,565	214	236	81	44	30	..
Kansas City	37,340	40,161	642	2,025	513	54	901	216	1,009	9
Milwaukee	665	2,782	33	1,206	7	39	93	1,171	1,384	9
Minneapolis	30,126	35,914	166	4,299	1,005	132	5,934	4,851	2,000	1,035
New Orleans	1,815	2,143	39	194	37	2	..	..	..	..
New York	200	460	47	222	10	24	2	..	5	..
Omaha	14,714	16,917	1,114	4,458	707	137	468	104	306	32
Peoria	427	836	48	324	110	74	..	..	184	156
Philadelphia	2,081	2,679	16	80	9	5	38	44	1	4
St. Louis	8,213	6,938	427	2,453	564	148	44	681	311	3
Sioux City	898	1,737	154	704	99	23	111	6	48	31
St. Joseph	6,161	6,997	337	324	287	93	11	5	171	2
Wichita	7,864	8,971	3	1	56	1	..	..	42	6
Canals	..	..	..	93	..	..	..	..	..	..
Lakes	..	195	..	..	..	..	..	..	..	..
Totals	186,234	216,170	5,431	44,276	7,171	2,170	22,164	16,799	10,219	2,150

United States Grain Stocks

Commercial stocks of grain in store and afloat at the principal markets of the United States at the close of the week ending July 31, 1943, and Aug. 1, 1942, as reported to the United States Bureau of Agricultural Economics, in bus (000's omitted):

	American		Canadian in bond	
	July 31 1943	Aug. 1 1942	July 31 1943	Aug. 1 1942
Wheat	221,287	261,422	9,650	16,796
Corn	6,337	49,747	...	...
Oats	7,270	2,191	1,344	...
Rye	23,318	17,212	868	1,329
Barley	11,587	3,015	2,604	...
Flaxseed	116	688	...	...

Bonded Grain in the United States

Bonded grain in the United States Aug. 7, in bushels (000's omitted):

	Wheat	Oats	Rye	Barley
Baltimore	326	..	..	..
Boston	1,180	..	..	..
Buffalo	3,611	1,195	111	785
Afloat	221	..	..	..
Duluth	..	..	..	230
New York	390	..	..	..
Afloat	461	..	..	..
Philadelphia	928	..	..	..
Lakes	494	..	..	234
Totals	7,611	1,195	111	1,249
July 31, 1943	7,542	1,938	11	2,387
Aug. 8, 1942	12,975	..	288	119

Yield, Quality Prospects for Northwest Continue Good

MINNEAPOLIS, MINN.—Prospects of satisfactory crops of generally good quality for the Northwest remain unchanged from estimates of two weeks ago. Harvesting of small grains and flax is well advanced in southern Minnesota and South Dakota with wheat and oats being of uniformly good quality. Weather conditions generally have been favorable for the corn crop. Rye and barley continue to be of poor quality in the eastern portions. With harvesting under way throughout the Northwest, the biggest problem is manpower. The state manpower commission in Minnesota has issued an appeal for emergency workers to help farmers and threshing rig owners and a newspaper dispatch from North Dakota says 250 soldiers have arrived at Casselton to help in the harvest fields. The dispatch says farmers can obtain soldiers, at the rate of 60c per hour, if they have 120 acres or more of grain, but two farmers may pool their fields to make the 120-acre minimum.

★ ★ ★

HELENA, MONTANA.—*The Montana wheat crop is being estimated at between 60,000,000 and 65,000,000 bus by conservative crop forecasters while others, some with a third of a century of close contact with the Montana wheat situation, are claiming the crop will equal the 72,000,000 bu yield of 1942 and that it may go to 80,000,000 bus. No rust has been reported in any wheat area, winter or spring, and none is expected at this time. Grasshoppers are reported to be numerous in some sections but no great damage is expected.*

★ ★ ★

TOLEDO, OHIO.—Quality of the 1943 wheat crop is running about the same with a considerable portion of the crop No. 3 and No. 4, too light weight for milling into flour. It appears as though the soft wheat crop will have to be supplemented with soft wheat from the Pacific Northwest and with low-protein hard winters. Threshing of soft wheat in Ohio is nearly completed, with only a few fields remaining. Corn crop conditions are variable, with some fields showing prospects of a good crop while other fields appear in poor condition. Prospects for an oats crop are not encouraging while soybean prospects are good with many excellent fields in evidence.

★ ★ ★

OKLAHOMA CITY, OKLA.—*Excessively high temperatures and an uninterrupted drouth during the past two weeks have damaged the corn crop severely, especially the late-planted grain. The earlier-planted corn was practically made before the drouth set in. The sorghum crops are also deteriorating rapidly. Threshing of small grains is practically completed and harvesting of alfalfa seed is now in progress.*

★ ★ ★

INDIANAPOLIS, IND.—Temperatures during the week averaged above normal and rainfall varied from moderate to heavy in most areas, making conditions favorable for corn growth. Wheat harvest is practically over and the crop is reported poor and disappointing with much light weight and tough grain of variable quality. Oats are mostly light with variable yields and quality. Heavy corn borer damage in some sections of the state is reported. Reports from the south say prospects are poor.

★ ★ ★

PORTLAND, ORE.—*Harvest is proceeding under normal weather conditions and a good crop is anticipated in most sections of the Northwest.*

★ ★ ★

WINNIPEG, MAN.—While drouth continues to take a heavy toll of crops over sections of southern Alberta and western Saskatchewan, generous rains have brought relief to other areas. The general picture is better than a week ago. Barley cutting is general in southern Manitoba and early threshing returns show good quality. Wheat cutting should be under way in southern and central Manitoba and parts of southern Saskatchewan this week. Shortage of harvest help is still a serious problem in many areas.

★ ★ ★

DODGE CITY, KANSAS.—*The persistent drouth in the Dodge City area has been terminated by early August rains totalling from two to four inches which have been soaked up by the dry fields and a foundation is laid for favorable fall wheat seeding. During July only one-fourth inch of moisture fell in six meager sprinkles as compared with an average July rainfall of more than three inches.*

New Flour Ceiling for Pacific Coast Millers Planned by OPA

WASHINGTON, D. C.—Amendments to the flour ceiling order to make prices conform to the 100-lb weight basis and to remedy disadvantages of Pacific Coast millers in central and eastern states are being planned. Officials of the Office of Price Administration are now working on these amendments to MPR 296, it is reported.

It was explained that soft wheat millers in the central and eastern states are able to market their products under MPR 296 through acquisition of available soft wheat without high rail costs, whereas west coast millers were confronted with freight differentials that had proven burdensome. It is OPA's intention to give the eastern and west coast millers equality in markets through modification of the price ceiling order.

When the soft wheat bakery flour price ceiling was raised last February, the upward adjustments applied only to flour milled east of Wyoming, Colorado and New Mexico and south of South Dakota, Iowa and Wisconsin. Pacific millers kept the same ceilings as before. Meanwhile, Pacific wheat prices have advanced to a point where business has been shut off. The result is that Pacific wheat milled in eastern states can be sold as flour at higher prices than can wheat milled on the Pacific Coast.

Soft wheat millers in central and eastern states also are looking to OPA for some assistance in their price squeeze, which has hampered flour business in that area severely since soft wheat prices advanced so rapidly recently. Either a new ceiling price for soft red winter wheat which will "roll back" prices or an adjustment in flour ceilings is needed. It is expected that the wheat ceiling will be established and an announcement is looked for at any time.

—BREAD IS THE STAFF OF LIFE—

JOBBERS FILE BRIEF FOR HIGHER MARK-UP

National Association of Flour Distributors Also Request Raising L.C.L. Division Point to 105 Bbls

Higher mark-ups for jobbers and an increase in the l.c.l. unit to 105 bbls are requested in a brief filed recently by the National Association of Flour Distributors with the Office of Price Administration.

The distributors point out that the present 55-bbl division point in MPR 296, the flour price regulation, should be abolished entirely, but should a division point be necessary the point should be 105 bbls, the brief says, pointing out that the various trucking rates established by regulatory authorities set 20,000 lbs as the standard truck load. Exhibits are included in the brief to show how the present 55-bbl requirement has increased small truck shipments and caused extra use of trucks, labor, etc.

In Chicago there has been a 58% increase in truckloads of less than 55 bbls, in New York a 23% increase, Baltimore 100%, Cleveland 100% and New Orleans 50%. This has been accompanied by declines in larger truck shipments.

The association also asks that the 10c bbl mark-up above the maximum carload price for pool cars be raised to 25c, stating that the labor and expense of such pooling is considerably in excess of 10c bbl.

It also is recommended that the 25c bbl charge now allowed for delivery of less than carlots be raised to allow for trucking charges, which frequently amount to 40c bbl.

The distributors also declare that 65c bbl margin above the maximum carload price for distribution of l.c.l. lots should be advanced to $1, which is the historical margin of the flour distributor justified by cost of operations. Exhibits are included to cover these points.

—BREAD IS THE STAFF OF LIFE—

F. L. SWENSON WITH MFA

KANSAS CITY, MO.—F. L. Swenson, until recently manager of the Jerseyville, Ill., feed mill and elevator for the Standard-Tilton Division of Russell-Miller Milling Co., has joined the MFA Grain & Feed Co., Kansas City, as representative in Missouri.

WIN CAMPBELL, HEAD BAKERY GROUP, DIES

Chairman of Campbell-Taggart Associated Bakeries, Was Leader in Big Bakery Development

KANSAS CITY, MO.—Winfield M. Campbell, chairman of the board of Campbell-Taggart Associated Bakeries, Inc., died Aug. 4 in Vancouver, B. C., while on vacation. He was 70 years old.

Mr. Campbell first started in the baking business at Red Cloud, Neb. His next step was to form the Campbell-Sell Baking Co. at Denver, where he met Mrs. Campbell. Subsequently he joined the Chipelow Co. in Chicago, and later became production manager of the Smith Baking Co., Kansas City. Then he introduced Tip Top bread for Ward Baking Co., traveling throughout the country in this capacity.

After that experience he formed Campbell Baking Co. at Des Moines, then, after establishing plants at Wichita and Kansas City, he started the Campbell System, Inc., a chain of about eight bakeries which later became a part of United Bakeries Corp., the consolidation inspired by Ward & Ward at Buffalo. He went to Chicago with this consolidation in 1922, leaving there to retire about a year later when the chain was reformed into Continental Baking Co. in 1924.

In 1924 he joined C. J. Patterson in the C. J. Patterson Corp., which was later to become the present company. The name was changed in 1925 to the Win Campbell Co. and about 1928 into Campbell-Taggart Associated Bakeries, Inc. The Manor Baking Co., Kansas City, was the parent plant. J. W. Carence and I. E. Madsen were co-founders of this system with Mr. Patterson and Mr. Campbell. Mr. Patterson first joined Mr. Campbell in the Campbell Baking Co., as did M. Lee Marshall, present head of Continental Baking Co.

A highly respected man in his community and among men in the industry, Mr. Campbell was friendly and sincere in all his business dealings. He was a president of American Bakers Association, and during the first World War served as chairman of a committee of 12 to work with Herbert Hoover on the food program.

He is survived by Mrs. Campbell, whom he married in Denver in 1910, a brother, sister and half brother.

The funeral will be in Denver Aug. 19, the city where Mr. Campbell made his first real start in large bakery operations.

—BREAD IS THE STAFF OF LIFE—

WHEAT AND CORN PAYMENTS LOWER IN AAA PROGRAM

WASHINGTON, D. C.—War Food Administration has revised downward payments to wheat, corn and cotton producers under the 1943 agricultural conservation program, adjusting available funds to increased participation in the program.

N. E. Dodd, chief of the Agricultural Adjustment Agency, explained AAA has approximately $390,000,000 available for 1943 conservation payments.

Revised rates of payments with the former rates in parentheses are:

Cotton, 1c lb (1.1c); corn, 3c bu (3.6c); and wheat, 8.5c bu (9.2c).

★ Turnover in bakery help—and untrained people in the shop—make good baker's flours doubly important in upholding the uniform quality of your breads, cakes and sweet goods.

So bakers everywhere are depending more and more on well known brands of Commander-Larabee flours that assure them good strong doughs to help control the effects of occasional variations in shop procedure these days.

Commander-Larabee flours are milled especially for bakers, from best selected wheats. You'll find them always uniform to the same high standards of baking quality. They furnish a sound foundation for best results under all conditions of baking procedure. And there's a type and grade of Commander-Larabee flour milled to meet your particular shop conditions. Let the Commander or Larabee representative tell you more about these good flours for today's baking requirements.

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After all,

"There is No Substitute for Quality"

There is nothing uncertain about

BAY STATE Flours

milled from guaranteed hard spring wheat. They are flours that will produce a class of bakery goods not of average—but of

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BAY STATE MILLING CO.

MANUFACTURERS OF

HARD SPRING WHEAT & RYE FLOURS

WINONA, MINNESOTA

SPRING WHEAT FLOURS

RED WING SPECIAL

BIXOTA

CREAM *of* WEST

PRODUCE BREADS WITH TASTE APPEAL

THE RED WING MILLING CO.

RED WING, MINNESOTA

Wheat Washed with Our Own Artesian Well Water.
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WHEAT

WINTER
SPRING
DURUM

• • •

By the
TRUCK-LOAD
CAR-LOAD
BOAT-LOAD

• • •

Any Where
Any Time

BUY *and* **SELL** *through* **WANT ADS** ...in... The Northwestern Miller

FDA PROMISES MORE STRINGENT ENFORCEMENT OF BAN ON STALES

Prosecution of Bakers Who Violate Provisions of Food Distribution Order No. 1 Planned—Severe Penalties Possible for Both Grocer and Baker—Coding Discussed

The Food Distribution Administration has begun a more active campaign for enforcement of provisions of Food Distribution Order No. 1, with particular emphasis on the prohibition of stale returns or giving credit for unsold products.

Some charges of violations have already been placed against a few bakers, including some for accepting stale returns.

In every section of the country, regional FDA officials have been meeting with bakers, warning them about violations of the regulations and promising prosecution of offenders. Special attention is being called to the sections involving consignment selling. In most areas grocers are being warned, too, since it is now as illegal for the grocers to take such credits as it is for the baker to give them. In many cases, no doubt the violations are committed by salesmen without the baker's knowledge, but it is the baker's responsibility to see that his employees observe the law. Any baker who has not already done so, should make sure that his salesmen are acquainted with the order.

Penalties for violation of Food Distribution Order No. 1 can be severe. A baker can be literally put out of business. Section G of the order provides that "the War Food Administrator may, by suspension order, prohibit any person who violates any provision of this order from receiving, making any deliveries of, or using bakery products, or any other material subject to priority or allocation control by the War Food Administrator, and may recommend that any such person be prohibited from receiving, making any deliveries of, or using material subject to the priority or allocation control of other governmental agencies. In addition, any person who wilfully violates any provision of this order is guilty of a crime and may be prosecuted under any and all applicable laws. Further, civil action may be instituted to enforce any liability or duty created by, or to enjoin any violation of, any provision of this order."

Grocers also could be prohibited from dealing in any item subject to FDA orders. These orders (there are over 60 of them) cover most of the items carried in a grocery. In other words, they, too, could be put out of business. In addition they could be subjected to the other penalties provided by the order.

The driver-salesmen involved can be subjected to criminal and civil suits and, possibly, can be prohibited from receiving "bakery products, or any other material subject to priority or allocation control (most foods) by the War Food Administration."

Because there is some misunderstanding about it, it is pointed out that bakers are not permitted to take moldy or crippled merchandise out of a grocery and give the grocer credit for it.

The whole matter of enforcement was discussed at length at the July meeting of the Baking Industry Advisory Committee in Washington, and a committee was named to study the possibilities of an extensive educational program in the industry to secure better co-operation. Coding of machine wrapped bread was discussed as a further compliance measure, but it was recommended that compulsory coding not be established unless FDA decides such action is essential to proper enforcement.

——BREAD IS THE STAFF OF LIFE——

JOINS ANHEUSER-BUSCH, INC.

Wirt E. Knapp, St. Louis manager for Lamson Bros. & Co. for the past 10 years, will become associated with Anheuser-Busch, Inc., Minneapolis, in the grain department, effective Aug. 15.

——BREAD IS THE STAFF OF LIFE——

NEW SPRING WHEAT ARRIVES AT MINNEAPOLIS MARKET

MINNEAPOLIS, MINN.—The Hoover Grain Co. of Minneapolis received the first authentic car of new spring wheat for the 1943 marketing season, Aug. 3, after having received the first car of new oats and new rye. The wheat, which graded No. 1 heavy dark northern, originated at Northville, S. D., was shipped by the Northville Grain Co. of that town. King Midas Milling Co. of Minneapolis paid $1.42 bu for the wheat, which tested 60.5 lbs to the bushel, carried a moisture notation of 11.5% and protein content of 14.40%.

WANTED:

CEREAL BUYER

★

Large food organization has opening for man qualified to handle cereal procurement. Must have experience in buying and selling cereal products. Technical training in cereal manufacturing desired. Practical knowledge of plant operations required. Position represents permanent connection. Prefer man under 45 with executive experience in cereal field. Men in department know of this opening. In reply, give age, draft status, education, and employment record. Replies held confidential and, if desired, may be made through third party. Address 6288, the Northwestern Miller, Minneapolis, Minn.

LA GRANGE FLOURS . . .

whether plain or enriched, remain the same high standard, dependable flours that have characterized the products of La Grange Mills over the half century and more of their operation.

This quality pattern is not an accident but the result of painstaking care in wheat selection and careful milling.

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You can depend on LA GRANGE FLOURS

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LA GRANGE MILLS RED WING MINNESOTA

"SUNNY KANSAS"

A grand flour to take on when some other flour has not worked so well.

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WICHITA FLOUR MILLS COMPANY
WICHITA, KANSAS
2,500 BBLS DAILY

"SNOFLOUR"
Superb All-Purpose Family Flour
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"IMPERIAL"
A Quality Top in Strong, Uniform, Country Milled Bakery Flour

The WALNUT CREEK MILLING CO.
Established 1877
GREAT BEND, KANSAS

"ROCK RIVER" RYE "OLD TIMES" BUCKWHEAT
"BLODGETT'S" RYE
All Grades—From Darkest Dark to the Whitest White —Specially Milled by the Blodgett Family—Since 1849
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CHOICEST SPRING WHEAT FLOUR
Manufactured under Laboratory and Bake-Shop Control
Leading Patents { VANITY FAIR, TELEPHONE, MARITIME, INVADER—*Higluten*

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MINNESOTA GIRL FLOUR . . . . . long on quality!
Spring Wheat Fancy Patent Family Flour
Enriched { with Vitamins and Iron

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Today & Yesterday

A RECONSTRUCTED MILL

The Saturday Evening Post of June 12 published a most entertaining article, illustrated from colored photographs, about the reconstruction of an old Indiana village, Spring Mill, with a grist mill as the central feature. The village lies in what is now a state park.

Not only was the mill rebuilt in exact replica of the historic one it replaced, but it was equipped as more than a museum piece—it runs. Grinding corn meal is one of the tourist attractions of the place. Last year, says the Post writer, 22,680 5-lb sacks of meal were ground there and sold to visitors.

"There are epicures," runs the account, "who refuse to use any corn meal other than that ground at the Spring Mill. They return again and again for a new supply."

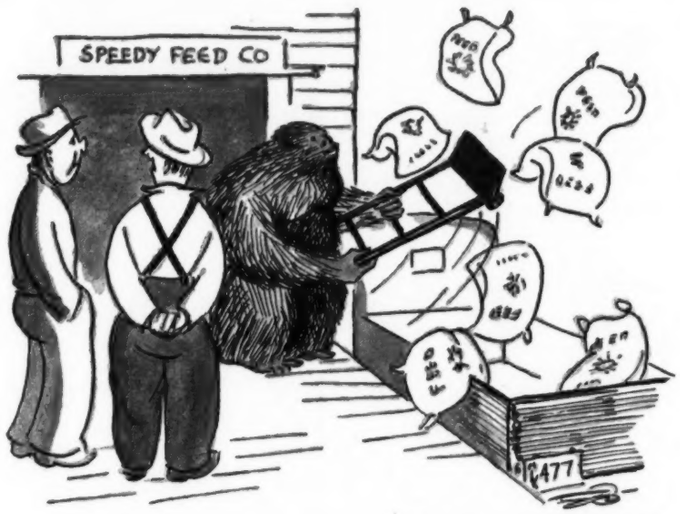
This sounds a trifle excessive, but it is in keeping with the rest of a very ornamental tale. Maybe you'd rather read the long story in the Post, but if you prefer a shorter version, try ours from THE NORTHWESTERN MILLER of Nov. 1, 1933:

"Nestled snugly among the lofty hills of southern Indiana lies the quaint little Hoosier village of Spring Mill, now a portion of a state park. The village was founded by one Samuel Jackson, a settler from Canada, who built the original log mill in the year 1814. The log mill was supplanted in 1817 by a stone structure, owned and operated by Cuthbert and Thomas Bullitt, Virginians, until 1823. From 1823 to 1831 it was owned and operated by William and Joseph Montgomery, Philadelphia merchants, after which it passed to the ownership of Hugh and Thomas Hamer, of New York. Hugh Hamer operated it until his death in 1872. It was then sold to Jonathan Turley in 1881 and it was continued in operation by Turley for several years. It finally fell into disuse until acquired by the Indiana State Department of Conservation, by which it has been authentically reconstructed in its original condition.

"The walls of the structure are fully three feet thick, built of Indiana limestone quarried near by. The water supply comes from a reservoir on an adjacent hilltop, from which point it is sluiced to the monster wheel by a wooden flume, the piers of which are about 50 ft high.

"The main drive shaft and all counter shafting, pulleys, etc., are constructed entirely of wood, hand hewn, and all of the interior machinery is in its original condition.

"The mill is but one of a number of buildings which were constructed about this time, and practically all of them are of massive stone construction. All these buildings are either in their original state of preservation or have been reconstructed as when they were in actual use by their original owners."



—By Martin Newell in FEEDSTUFFS

"I told the draft board it wouldn't work!"

BRAN BUGS

A large group of beetles that feed on grain dust and milled cereals but are unable to attack sound and undamaged grain are classed as "bran bugs." These beetles are usually reddish brown and vary in length from one sixteenth to one seventh inch. The most important of these are the so-called flour beetle (*Tribolium confusum Duv.*) and (*T. casteneum* [Hbst.]). Specimens of these flour beetles have been found in jars of grain taken from Pharaonic tombs of the Sixth Dynasty (about 2,500 B.C.) although they were described and named less than 150 years ago.

The importance of these two insects is due to the fact that they breed in enormous numbers in flour and other milled cereal products. Carried into flour mills with supplies of grain used in milling, they are not killed by grain cleaning operations or by the milling process and become established throughout the milling units. They render the job of producing insect-free flour extremely difficult and are easily the worst of the insect pests of flour mills. In the Southwest they have been found to constitute more than 80% of the insect population of flour mills.

The flour beetles lay their eggs freely in flour and grain, and the worms hatching from them feed and complete their growth as free-living individuals. The flour beetles have an additional claim to interest, owing to their employment as test insects. As large numbers of them are easily reared at all times of the year in the laboratory, they are always available for use in determining the relative toxicity of poison gases, for investigations on nutrition, radiation, behavior, metamorphosis, and genetic problems, and in population studies.

Another interesting member of this group is known as the saw-toothed grain beetle (*Oryzaephilus surinamensis* [L.]). The common name of this slender brown beetle, about one-tenth of an inch long, is derived from the peculiar structure of the thorax, which bears six saw-tooth like projections on each side. It sometimes develops in tremendous numbers in bins of farm-stored grain, but does little actual damage, as it feeds chiefly on cracked and broken kernels. It is at times exceedingly troublesome in warehouses and grocery stores, because of its habit of entering all types of packaged foods. This insect rarely if ever flies but is a rapid walker and, owing to its small, flat shape, is able to squeeze its way into many seemingly tight packages.—R. T. Cotton, senior entomologist, U. S. Department of Agriculture.

CALENDAR REFORM—15 B. C.

The historian Ferrero tells about an interesting expedient adopted by Augustus Caesar's taxgatherer to keep the money rolling in. The taxgatherer was a liberated slave named Licinius. He was full of big and original ideas. He made the Gauls pay taxes every month, and when the exchequer ran low, he simply increased the number of months from 12 to 14. He called the last two months Undecember and Duodecember. Let's keep this just between us—not a word of it to Randolph Paul or Henry Morganthau.—*Nation's Business.*

BRITISH HARVEST

And the desolate land shall be tilled: Ezekiel 36, v. 34.

Now we see the golden harvest of our precious soil—
Fruit of our endeavor—rich return for months of toil.

The lands that once lay desolate to plenty are restored—
Hopes are more than satisfied—and great is the reward.

We neither plowed nor planted in the lean, uneasy years—
But now the furrows have been watered with our blood and tears.

And when the lines of pain and strain are smoothed from England's brows
Her sons must take their swords of war and beat them into plows.

PATIENCE STRONG.

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The·Northwestern·Miller

AUGUST 11, 1943

MILLING PRODUCTION SECTION

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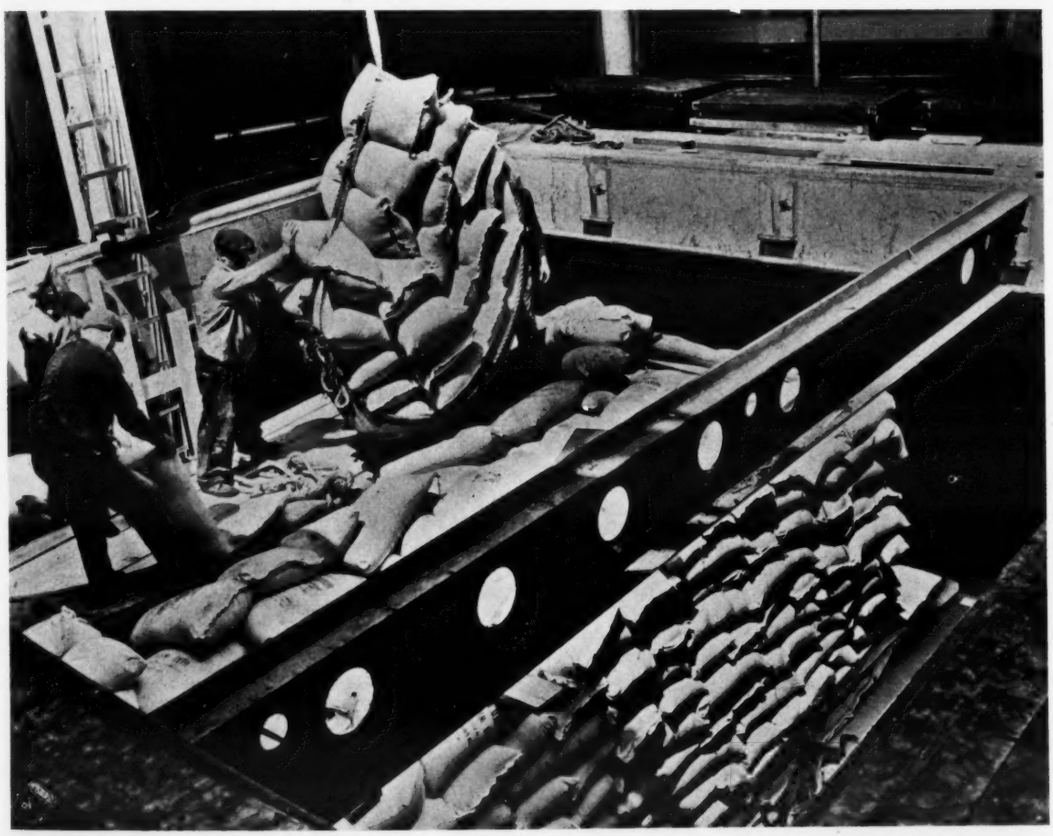
FLOUR FOR FEEDING FAMISHED NATIONS



OFFICIALS of the Office of Foreign Relief and Rehabilitation have stated that the largest single tonnage item among our relief food supplies will be cereal products. Wheat flour has bulked heavily in the shipments that have been made to date. Through June FDA had bought, since last fall, for lend-lease and relief purposes, 4,199,933 bbls of enriched white flour, 1,894,929 bbls of unenriched flour, 65,325,000 lbs of cracked wheat and 6,056,277 lbs of wheat meal. No indication has been given of the precise amounts devoted to foreign relief.

Amounts purchased and shipped for certain calendar periods depend on the direction of the military strategy and the speed of military success, but one thing is certain, states Patrick M. Malin, assistant chief of OFRRO's division of programs and requirements—"cereal products seem destined to account for at least 50% of the total tonnage of food shipped from this country."

The accompanying picture, a Signal Corps photo from the Office of War Information, shows the loading of a cargo of flour at an Atlantic Coast port, destined for distribution in Tunisia. Operations of OFRRO in Tunisia have been centered in the city of Tunis.

Plans for distribution of essential supplies to distressed civilians in Tunisia were executed close on the heels of Allied military operations in that area. Initial reports to Herbert H. Lehman, director of operations, show that small stockpiles of essential food and clothing assembled by OFRRO in co-operation with the military in or near Tunisia were utilized for primary civilian needs. This stockpile, which by the time of the major military offensive approximated 10,000 tons, was comprised of cotton cloth, condensed and powdered milk, flour, sugar and clothing. Current flour shipments are designed to replenish stocks already distributed.

An article dealing with OFRRO plans, with respect to flour, for feeding the peoples of liberated countries appears on page 26a.

Volume 215 • Number 6

THE ROAD TO LOW-COST ENRICHMENT RUNS THROUGH THIS MACHINE

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GRAIN SCOURERS ★ WHEAT CONDITIONERS and WASHERS ★ DUSTERS ★ FINISHERS ★ SEPARATORS ★ HAMMER MILLS ★ FEED MILL MACHINERY

Chemistry for the Operative Miller

★ ★ By Dr. C. O. Swanson ★ ★
Kansas State College

I. The Chemical Analysis of Wheat

AN AVERAGE wheat kernel weighs about 25 milligrams which means that it takes 40 kernels to weigh one gram, 18,000 per lb and about 1,000,000 per bu. An average kernel is about 5.5 millimeters long and about 2.6 millimeters in cross section or about twice as long as wide. Thus 10 kernels laid side by side would measure one inch and between four and five kernels, laid end to end, would likewise make a line one inch long. There is much variation in this, of course, but as the sphere has the least amount of surface in relation to weight, the shorter and wider wheat kernels have more inside endosperm in proportion to outside bran and consequently give better flour yield.

ELEMENTS AND COMPOUNDS IN WHEAT

While each wheat kernel is a small body every one contains practically all the chemical elements and compounds found in wheat. Thus if we knew the complete composition of one average kernel we would know what wheat contains. Charles H. Briggs of the Howard Wheat Testing Laboratories (Production Annual, THE NORTHWESTERN MILLER, Oct. 10, 1934) names 122 elements and compounds which may be present in wheat or flour. While wheat kernels are alike in possessing the different elements and compounds which they may contain, they differ in the relative amounts of these elements and compounds. This is one of the fundamental reasons for the variation in composition and consequent differences in quality.

It is necessary to start with samples of several pounds and then mix, reduce the size, grind and remix in order that the small amount weighed on the delicate balance shall represent the lot of wheat or flour analyzed.

MEANING OF ANALYSIS

There are various kinds of analyses. The original meaning of the word is to "loosen up." In common usage the word means to separate into constituent parts and also to determine the relative proportion of parts. In a sense milling is a process of analysis since it breaks down the wheat kernel into constituent parts such as bran, shorts and flour streams which are blended to obtain the various flour grades.

FROM GLUTEN WASHING TO MODERN MILL LABORATORIES

One of the oldest means of analysis was that of obtaining an estimate whether wheat or flour had little or much gluten. This required only the chewing of a few kernels of wheat or of washing the gluten from a piece of dough. With practice valuable information could be obtained on both quantity and quality of gluten. With the development of merchant milling and the larger bakeries came the need for more exact information. At the end of the 19th century chemical laboratories connected with wheat flour mills were few. Their rapid development and spread has added much to our knowledge of wheat composition and quality. As a consequence the mills now have accurate information as a basis for selecting and blending the wheats needed to produce the flours demanded by their trade.

A SIMPLE BUT INFORMATIVE CHEMICAL EXPERIMENT

Heat and chemical reagents are the usual means employed for decomposing and separating the materials in wheat into its constituent parts such as the various compounds or even the elements. If a small amount of sugar is carefully heated in a glass test tube, drops of liquid may be observed to collect in the cooler upper part of the tube. That this is water may be shown by adding a small amount of a chemical substance, anhydrous copper sulphate, which develops an intense blue when wetted by water. The heat on the bottom of the tube at the same time changes the white sugar to a black charred material. A careful examination will show that this is mostly carbon, the principal ingredient in coal. This simple experiment reveals then that sugar contains the elements present in water and also in coal.

MOST OF THE WHEAT IS MADE OF FOUR ELEMENTS

By laboratory experiments which range from relatively simple to those which are exceedingly complex, the chemists have found that all matter is composed of 92 elements. About 24 of the elements are found in wheat. From the quantitative standpoint three elements, carbon, hydrogen and oxygen constitute 96% of the wheat kernel. Nitrogen, which is the most important from the wheat quality standpoint, makes up about 2% of the total in wheat. Nitrogen varies more in relative quantity than any other element and this fact is one of the fundamental causes for variation in wheat quality. Since protein is 5.7 times the nitrogen, the more nitrogen, the more protein.

ASH CONTAINS SEVERAL ELEMENTS

The elements, potassium, sodium, calcium, magnesium, sulfur, chlorine and phosphorous, constitute most of the remaining 2%. These elements, together with oxygen, constitute almost all of the wheat ash. In addition to the elements mentioned, wheat contains zinc, nickel, iron, managanese, boron, copper, aluminum, bromine, iodine, arsenic, cobalt, fluorine, and traces of some other elements. The last 12 or more elements are present in such small amounts that quantity usually is given as so many parts per million, instead of percentages, which confers on wheat its distinctive characteristics.

WATER AND CARBOHYDRATES

Since the three elements, carbon, hydrogen and oxygen, constitute about 96% of wheat it follows that the compounds composed of these three elements would be the most abundant. Water, which is present in wheat to the extent of about 12%, contains only hydrogen and oxygen. When carbon is combined with these two elements there results the large group of compounds known as carbohydrates. The word carbohydrate suggests a combination of carbon with water. The carbohydrates, however, are not simply combinations of carbon and water, but the hydrogen and oxygen are present in the same proportion as in water. Hence when a carbohydrate like the sugar, is heated the elements hydrogen and oxygen combine to form water and leave the carbon as a material similar to charcoal.

STARCH THE PRINCIPAL CARBOHYDRATE

Starch is the most abundant carbohydrate in wheat, followed by pentosans, sugars and celluloses. Starch is present in smaller amounts in the endosperm, the pentosans and the cellulose are more abundant in the bran. The differentiation between the various carbohydrates is not as sharp as between protein and carbohydrates. The carbohydrates are more or less similar and hence separation is less exact.

ELEMENTS PRESENT IN FATS

Fats are also composed of carbon, hydrogen, and oxygen, but in fats the carbon is present in a much larger proportion than in the carbohydrates and the hydrogen and oxygen are not present in the same proportion as in water. The large proportion of carbon in fats gives them 2¼ times the calorie value of carbohydrates when used as foods. The fats in wheat, from the standpoint of food value, are relatively of small importance because of the small amounts present, but the fats have important effects on quality during wheat and flour storage, and some compounds associated with the

(Continued on page 17a.)

ABOUT THE ARTICLES AND THE AUTHOR

The accompanying article is the first in a series dealing with cereal chemistry for operative millers and was prepared by Dr. C. O. Swanson, Department of Milling Industry, Kansas State College, Manhattan. Succeeding articles in the series will deal with other topics in cereal chemistry that Dr. Swanson believes will be helpful to millers.

Readers of this journal are familiar with the "By Dr. C. O. Swanson" byline. He has been a regular contributor to this publication for many years. In evaluating the worth of his articles, the director of research of a large mill recently wrote:

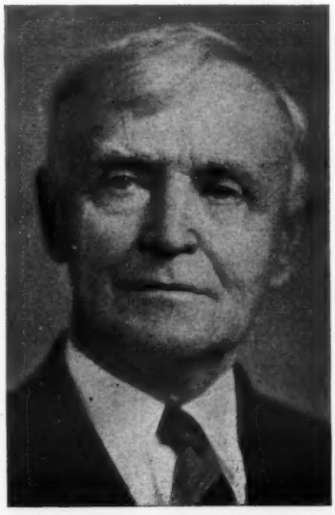
"I am just dropping you a line to let you know that the articles by Doctor Swanson are appreciated. I have heard a number of the men with whom I come into contact remark about the good material contained in his writings.

"As you well know, there are very few writers who can take a scientific subject and reduce it to the laymen's language. After all is said and done, that is exactly what has to be accomplished before a subject is thoroughly understood by the public in general. It is my feeling that Doctor Swanson's articles accomplish this objective."

Doctor Swanson is the "daddy" of the Department of Milling Industry at Kansas State College. Before he took over the department, a few courses in flour milling were offered in the Department of Agricultural Engineering. The Department was organized and through Doctor Swanson's efforts and because of his tireless energy, it soon won the support and plaudits of the industry. Scientific research, combined with practical experience in the College mill and in commercial mills, served to help lift the art of milling from a "father-to-son" trade to a profession.

The closest kind of co-operation is essential as between the physical and the chemical in the operation of our modern mills. The miller cannot hope to have a complete knowledge of chemistry, but he should know enough about the subject to enable him to comprehend just what the chemist is talking about.

The series of articles by Doctor Swanson, the editors believe, will supply the operative miller with that information.



Dr. C. O. Swanson

Nutrition Officials to Recommend

SOY FLOUR IN AMERICA'S DAILY DIET

By Paul L. Dittemore

Technical Editor of The Northwestern Miller

AN educational program, designed to acquaint the American public with the uses and nutritive value of edible soybean products, is being developed by the Department of Agriculture and the Food Distribution Administration. The program will be released on a national scale when the production capacity of the soybean processing plants becomes developed to a point where the output will be sufficient to meet potential domestic demand plus the demands of lend-lease for protein foodstuffs, according to the FDA.

One manufacturer of edible soybean products recently started a test campaign in eight widely separated cities, to advertise its soy flour. Newspaper space and radio time will be used in this manufacturer's campaign.

Manufacturers now are engaged in building plants for processing soybeans into edible food products. It is estimated that for the last six months of 1943, about 200,000,000 lbs of high quality soy flour will be made available for domestic use. Full production capacities of the various plants now being built will be reached near the end of 1943 and in 1944 it is estimated that 500,000,000 lbs will be available for use domestically and about 1,000,000 000 lbs for lend-lease and the feeding of civilians in reoccupied territories. These estimates are based on data from the Food Distribution Administration and from the Office of Foreign Relief and Rehabilitation.

"The primary problem," FDA officials state, "is how to make this high quality vegetable protein available to the American public without materially changing food habits."

PROGRAM TO BE ON VOLUNTARY BASIS

FDA proposes, among other things, to encourage the addition, on a purely voluntary basis, of 5% to 15% of soy flour to foods already eaten in large quanitties, such as bread, macaroni and similar paste goods. Encouragement to the manufacturers will be indirectly given by the extensive consumer-eduction program soon to be started.

Nutrition authorities feel that a certain amount of prejudice must be overcome before use of soy flour in the dietary is fully adopted by the consumer-public. In 1932 the Department of Agriculture issued a bulletin dealing with utilization of the soybean and the author of the publication stated that "Undoubtedly some of the soybean products of the Orient may meet with increasing favor in North America, but prejudice and custom are among the factors that prevent a people from quickly adopting new foodstuffs."

Dr. Russell M. Wilder, chief of the civilian requirements branch of the Food Distribution Administration, said at a recent public hearing in Washington:

"Provision of satisfactory quantities of thiamine, niacin, riboflavin and iron by under-milling wheat or by additions to white flour of soybeans, cottonseed or other legumes, in the quantities necessary to provide the required amounts of these nutritional factors, yields flours that are less satisfactory for many purposes from the standpoint of cooking quality, appearance and taste.

"Such flours encounter consumer resistance especially on the part of persons who by necessity must eat much bread. . . . Extensive use of whole-grains and undermilled flours or of mixtures of white flour with legumes is undesirable as a means of correcting the inadequate content of these micro-nutrients in the white flour customarily used in this country."

Soy flour has been produced in this country on a limited scale for some time. Soybean products have been on the market and health food stores in metropolitan areas have sold soy flour and other edible soy products for several years. The principal uses of soy flour, however, in years past have been in the manufacture of prepared foods. It has been used in large quantities in sausages, meat loaves and other products in which starchy cereals previously had been the leading components. Substantial quantities were also used in canned dog foods.

Confectioners also made extensive use of soy flour. It aids in the emulsification of fats and prevents drying out of the finished candy. It is used to retain freshness and an added flavor in sweet goods such as pie dough, doughnuts and cakes. It has been included in noodles and spaghetti to increase the protein content of those foods.

PLAN TO MILL 1,500,000,000 LBS IN 1944

But since the government has authorized the milliing of 1,500,000,000 lbs of soy flour next year, other outlets than those in the food industry must be developed. Manufacturers of soy flour assert that since their product may be used with regular white flour in many recipes, it is not in direct competition with established brands of white flour. Recipes include its use in bread, cake, cookies, pies, puddings, etc. Many of the recipes recommended by the manufacturers are "meat dish" recipes. Their principal selling argument, however, will be emphasis upon the protein content of soy products. Officials in FDA feel that the United States in coming months may conceivably face a shortage of animal protein foods such as eggs, cheese, meat, milk, etc., and are permitting direct quotation of their recommendations in the advertising literature of the soy flour manufacturers.

While soybeans and edible soy foods may be something new to the average American, they have played an important part in the oriental nutrition for centuries. "Even when the pyramids were being built, 300 years before the Tower of Babel, and 12 centuries before Solomon fashioned his temple, the soybean was hoary with age," Edward J. Dies writes.

Soybeans were first made known to the western hemisphere by Englebert Kaempfer, a German botanist, who spent two years, 1691-1692, in Japan. He took some seed back to Europe with him and for many years the plant was regarded as a botanical novelty. The greatest impetus given to the culture of soybeans in Europe was by Friedrich Haberlandt of Vienna, who published the results of his investigations with soybeans in great detail. Haberlandt had great hopes for soybeans in European agriculture, but because of the climate the crop did not attain much prominence there.

The first mention of soybeans in American literature was made in 1804 by James Mease, who wrote that "the soybean is adapted to Pennsylvania and should be cultivated."

INTRODUCTIONS BY EXPERIMENT STATIONS

In 1899 W. P. Brooks of the Massachusetts Agricultural Experiment Station brought with him from Japan many varieties of soybeans. One year later C. C. Georgeson of the Kansas Agricultural Experiment Station secured three lots of seed from the same country. Since that time most of our agricultural experiment stations have conducted variety tests and research in cultural methods with soybeans. Increase in acreage and production of the crop has been closely related with the introduction of varieties from the Orient and their improvement through selection by plant breeders in this country.

But it was not until this country's agricultural industry was mobilized for war that the United States became "soybean conscious." Prior to our entry into the war, considerably less than 10,000,000 bus were harvested in any one year. The 1943 goal is 12½ times that amount—125,000,000 bus—with the possibility that this figure will be greatly exceeded. The July 1 estimate of the Crop Reporting Board of the Department of Agriculture reported 15,434,000 acres of soybeans as of that date, with 11,500,000 acres indicated for harvest of the seeds. That acreage is 7% more than was harvested in 1942. The average yield per acre in bushels over the United States is 16.1.

Production of soybeans, both in yield and in farm value, is surpassed among the grain and seed crops only by corn, oats, wheat and barley. The largest acreage of the crop is in Illinois, Indiana, Iowa, Ohio, Missouri and North Carolina. Those six states produce about three fourths of the total production in the United States.

Soybeans formerly were grown in this country principally for the oil and its by-product, soybean oil meal. Oil was used to supplement importations of tung oil, an ingredient used in paint because of its drying qualities, and to a limited extent for vegetable shortening manufacture. The meal is used as a protein supplement in livestock rations and includes the hulls and fiber.

CHEMURGY GIVES SOYBEANS A BOOST

With the advent of chemurgy in the United States, soybeans "graduated" from paint cans and cattle feed bunks to steering wheels and plastic gadgets. Probably no other agricultural crop got the publicity that was given to soybeans.

Processing soybeans for human consumption, however, is even more an infant industry than is the manufacture of plastics from soybeans. World War II has developed a situation that threatens a shortage of protein foods and this shortage forced immediate consideration of the nutritional value of plant proteins that may serve in the diet. Much had been learned of the nutritional value

A LARGE V-BELT INSTALLATION

The driven sheaves on a countershaft in what is believed the largest V-belt installation in the world is shown in the picture above. The installation is in the Stanard-Tilton Milling Co. plant at Alton, Ill. Each drive goes through the floor from the basement to the bottom of the second floor at about a 45-degree angle, and uses 15 "E" section V-belts (1½ inches top width) approximately 28 feet center distance. The sheaves are 60 inches in diameter, with 36-inch idlers used on the outside of the belts on the slack side, about in the center of the span.

through the feeding trials of soybean meal as a protein supplement in livestock rations. Foreign nutrition authorities, principally those in Germany, published a limited amount of research data dealing with soybean protein in human nutrition. Performance of the men in the German army in the early stages of the present war focused added attention on soy flour. For three or four years before starting hostilities Germany had been storing soybeans. Thus she had assured herself of a reserve supply of highly digestible and nonperishable vegetable proteins before starting the campaigns.

BRITISH QUICK TO USE SOY FLOUR

The British made prompt requests to lend-lease authorities for quantities of soy flour for use in the rations for their armed forces and also to supplement supplies of civilian foodstuffs. The U. S. army first used soy flour in the concentrated biscuit in the K-ration.

Soybeans undergo several refining processes before the finished product is offered for human consumption. Soy flour and soy grits and flakes are produced in modern sanitary food plants from carefully selected soybeans that are dehulled, the beany bitterness removed by a heat process, the oil retained or removed as desired and the product nutritionally precooked.

WHOLE BEANS ARE ABOUT 20% OIL

There are three methods in common use in extracting the oil from soybeans. The beans average about 20% oil and after they have been subjected to either the expeller or hydraulic extraction method, the resulting meal or cake contains about 3% oil. The solvent process leaves a residual meal containing less than 1% oil.

Expellers and screw presses have capacities of about 20 tons of beans per 24 hours, and mills operate with any number of such presses installed side by side, depending upon the desired capacity. Solvent process mills use a continuous process. Those solvent extraction systems in use today appear best suited for large scale commercial operation have a capacity of 50 tons of soybeans per day per unit. At this time about one fifth of all the beans processed in the United States are handled by solvent process units. Petroleum hydrocarbons, principally hexane, are used as solvents.

In the manufacture of the "full-fat" flour, the oil is not extracted from the beans. It is necessary that the "beany" or bitter flavor of the soybeans be removed before they are ground. This is accomplished by toasting the beans, then steaming and drying to remove the hulls.

After the beans have been debittered and dehulled, the oil is extracted, the meal is ground on a hammermill and air separated in the production of low-fat flour. When the solvent process is used to extract the oil, the beans are either rolled and bolted or hammermill ground and air separated.

One of the organizations producing soy flour has a process for removing the fiber before the flour is made. That process, of course, is regarded as a secret and was perfected by their research staff.

THERE ARE THREE TYPES OF FLOUR

There are three types of soy flour, according to the FDA specifications. They are: Pressed, wherein the oil is extracted by expeller screw methods; extracted, wherein the oil is removed with a solvent, and the full-fat flour. The oil content of either the pressed or the extracted type shall not exceed 4.5% crude fat while the full-fat flour "shall not contain less than 18% crude fat," the specifications state.

The protein contents of the different types do not vary appreciably. The full-fat type flour must not contain less than 40% protein to meet FDA specifications, while the pressed type must contain 45% protein. The extracted type soy flour must contain "not less than 50% protein" to pass the FDA specifications.

All types of soy flour "shall be so prepared that not less than 95% of the flour by weight will pass through a U. S. standard No. 120 woven wire cloth sieve," according to the specifications.

Manufacturers of soy flour in the United States today include Allied Mills, Inc., Chicago; Archer-Daniels-Midland Co., Minneapolis; Central Soya Co., Inc., Fort Wayne, Ind; The Glidden Co., Chicago; I. F. Laucks, Inc., Portsmouth, Va; Spencer Kellogg & Sons, Inc., Decatur, Ill., and A. E. Staley Mfg. Co., Decatur, Ill.

FLOUR MANUFACTURE REQUIRES SPECIAL MACHINERY

The manufacture of soy flour requires special equipment and skill and is not a branch of production to which flour mill machinery can be adapted or modified. If that were the case, soy flour manufacturers point out, the production of soy flour in quantities sufficient to meet the domestic demand and lend-lease requirements would have been a simple matter.

The soy flour industry is an infant industry. What its future will be is not predictable. Philip H. Van Itallie, nutrition editor of Food Field Reporter, has this to say:

"The postwar survival of edible soybean flour will depend upon what the industry as a whole is going to do in the immediate future. It seems to us that the word 'flour' to describe this high protein food is an unfortunate misnomer which will create a wrong impression, no matter what may subsquently be said about its high protein content. We also believe that, if the product is allowed to become synonymous in the public mind with 'meat extender,' its career will end just as soon as meat rationing is finished. You've heard of the ersatz bread and ersatz meat which was consumed in blockaded Europe of the first World War. . . . Yes, 'extender' has unpleasant connotations."

——BREAD IS THE STAFF OF LIFE——

Was the Wheel An Invention or An Adaptation?

● By "East Wind"

OUR way of living depends almost entirely upon millions of spining wheels. Not only in the movement of ships, planes, cars, etc., but also in the smaller, but most important, things in life. The bread and bacon on our breakfast table, buttons, shoes, to name a few items at random, the spectacles on your nose and yes—even the bloom on the ladies' cheeks, has somewhere in the background the turning of a wheel. Not only does our way of living depend on wheels, but it is also deeply affected by the rate at which they turn. Now the wheels of war move faster and faster, but the wheels of civilian life have slowed down considerably, and we have delays, and shortages, and rationing.

It is difficult to realize that ages ago empires rose and fell without knowing the use of the wheel. A wheel is such a simple affair in its simplest form—nothing but a disc with a rod pushed through it. A child might think of it. We are, however, looking at it from the wrong end, and looking back from 1943 instead of forward from thousands of years B.C. When our skin-clad ancestor looked out of his mud hut or cave as dawn came up over the woods or heaths, he saw nothing but pebbles and bits of wood, and his only tools were some sharp flints and a jagged bone or two. He had to make something circular in form before the remote possibility of a wheel could occur to him. Under these circumstances, progress was incredibly slow and I would venture a guess that the wheel was never invented at all, but adapted from something else.

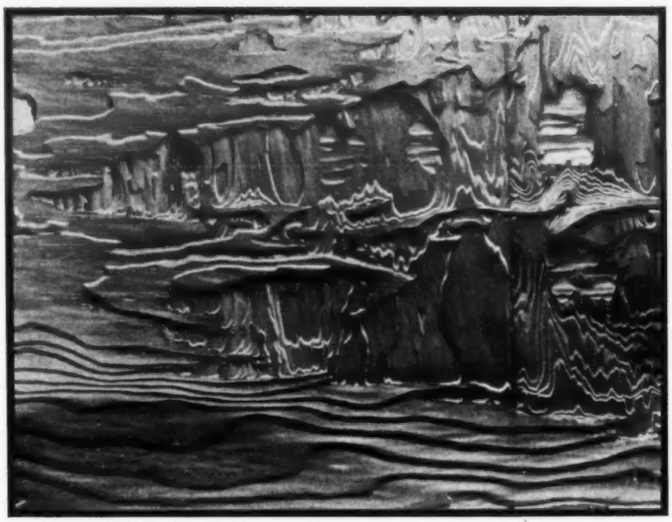
One of the first pre-occupations of man was how to crush his grain to prepare it for cooking. He could only use what was at hand and so he would select a flat stone on which to spread the grain, then he would naturally select another heavy, flattish stone and pound the grain to break it up. It would be tiring work, lifting the heavy stone and dropping it, and since the brains of many of us are brightest when we are trying to dodge work, it would soon strike him that by holding the stone with a hand on each side and rubbing it backwards and forwards and in a half circle this way and that, he could halve his labor. In course of years, a hollow would be worn into the lower stone and in this the upper stone would fit comfortably. The upper stone he was using might happen to be a piece of lava stone, full of indentations where bubble bursts had solidified, and an obvious thing to do would be to put a bit of stick in one of these holes near the edge and to use it as a handle to turn the stone in complete circles. He was an observant chap, this ancestor of ours, and he noticed that the crushed grain was always swept by some force of which he knew nothing, to the edges, and so one day when he had some time to spare, he painfully chipped a hole through the middle of the stone, so that he no longer had to lift the stone every tine he needed to put fresh grain under it, but could put it through the eye.

In course of time, the upper stone became so worn and thin that its weight was insufficient to crush the grain, and so he, or more probably his grandson, had to replace it, and he gave the old stone to his small son as a plaything. The child played with it for a time, and presently thrust a stick through the hole in the middle of it and ran it about by leaning over it with a hand on each end of the stick, and no doubt called out to his father and mother, as children will, so that they might express astonishment at his little tricks; they, as they watched him, had not the slightest inkling that through a combination of thinking processes and accident they had seen set in motion the first wheel, not an invention, but an adaptation, that would, as the centuries passed, increasingly dominate the lives of every living creature upon the surface of the earth.—*Milling.*

——BREAD IS THE STAFF OF LIFE——

"Break flours exhibit much more variation in their ash content with different wheats than do the flours from the reduction system. It is only natural that this should be so. Whatever the kind of wheat or its moisture condition, the reduction feeds of semolina and middlings can in most cases be extracted and cleaned to closely consistent degrees of purity. The quality of the break flours, however, is controlled by the cleanliness and degree of toughness of the wheats. Suitable dressing covers may modify but cannot entirely abolish variations. Thus break flours from very dry or brittle wheats will have much higher ash contents than similar flours from well tempered wheats."—J. H. Scott, in "Flour Milling Processes."

● THE EFFECTS OF WHEAT EROSION ●



The interesting design pictured above is the result of erosive action of thousands of bushels of wheat on a part of a plywood chute in the Albion Flour Mill, Albion, Mich. The softer parts of the plywood have been worn away, leaving the hard grain in relief to form the design.

Factors That Affect Keeping Quality of Grain in Storage

By Dr. W. F. Geddes

Editor's Note: The following is a summary of an address given by Dr. W. F. Geddes before the meeting of the Grain Elevator Superintendents' Association, held recently at Duluth. Dr. Geddes is head of the Division of Agricultural Biochemistry, University of Minnesota, and is a recognized authority in the field of cereal chemistry.

HEATING of grain in storage is the result of respiration, a phenomenon common to all living organisms. Respiration is analogous to combustion in that oxygen is combined with the food materials being utilized with the liberation of heat and the production of carbon dioxide and water as end products. Usually stored grain is living material, and hence respiration is an inherent characteristic of the grain itself; in addition the respiration of microorganisms (bacteria, molds) and insects associated with the grain may account for a large share of the respiratory activity exhibited in storage.

Grain is a relatively poor conductor of heat; wheat at 12.5 to 14.5% moisture, for example, has a heat insulating value about equal to that of sawdust. When respiration occurs at a sufficiently rapid rate to produce heat more quickly than it can be dissipated, the temperature of the grain rises and heat damage may result.

In laboratory studies of the factors affecting the keeping quality of grain in storage, it is much more convenient to measure the production of carbon dioxide, or the consumption of oxygen, rather than the heat production itself. The majority of the scientific studies have involved measurements of the carbon dioxide production. The earlier studies have shown that carbohydrates are the principal constituents of the grain which are oxidized and that the respiratory activity of the germ of cereal grains is many times greater than that of the endosperm.

MOISTURE CONTENT A FACTOR

Moisture content has long been recognized as one of the major factors determining the intensity of respiration of stored grain. If, for example, increasing increments of water are added to a sample of wheat and the rate of carbon dioxide production determined at 100 degrees F. after the water has become uniformly distributed, it is found that there is a very slow increase in the respiratory rate with increasing moisture content until a moisture level of somewhere between 14 and 15% is attained. At higher moistures, there is a very sharp increase in the rate of carbon dioxide production. The moisture contents exceeding those at which a break in the moisture-respiration curve occurs obviously involve a great storage hazard. Corn, oats, barley, rye, flaxseed and soybeans differ not only in their relative rates of respiration, but also in the form of their moisture-respiration curves. Of the grains listed, rye exhibits the lowest and flaxseed the highest rate of respiration. The low respiration of rye is in line with the relatively small germ area in proportion to the total area and the smooth surface of the kernel (which is not conducive to microorganic growth). The high respiratory rate of oil seeds such as flaxseed and soybeans, is in part attributable to their high content of fatty oils which are immiscible with water. For example, in flaxseed containing 40% of oil and having a moisture content of 10% in the entire seed, the moisture content of the non-oil portion of the seed would be approximately 16.5%. As the carbohydrates are the principal constituents utilized in respiration, it is obvious that the respiring material in oil seeds is higher in moisture than in cereal grains of the same moisture content.

EFFECTS OF CRACKED KERNELS

Factors other than moisture and kind of grain have a significant influence on grain respiration. Cracked, shrivelled and immature kernels respire more rapidly than sound plump grain of the same moisture content; the presence of foreign material and of sprouted frosted or heat-damaged kernels has also been shown to increase respiration. Other factors being equal, increases in temperature up to 131 degree F. have been found to result in an increase in respiratory rate. On the other hand, an

Dr. W. F. Geddes

accumulation of carbon dioxide in the interseed atmosphere depresses respiration; it must be emphasized, however, that grain will respire in an oxygen-free atmosphere but at a greatly reduced rate.

MICROORGANISMS "BREATHE," TOO

It is now recognized that microorganisms play a part in the heating and spoilage of stored grain but their relative importance in relation to the respiration of the seed itself is difficult to evaluate since the microorganisms are found within the seeds, as well as on their surfaces so that it is not possible completely to kill them or inhibit their growth by non-volatile solid antiseptic agents. Volatile agents which penetrate the seed may influence the respiration of the grain itself. Microorganisms are always found in abundance in heating grains and the moisture contents at which the rates of respiration of grain markedly increase roughly coincide with the moisture at which molds begin to proliferate freely. Viable grain is less easily attacked by such microorganisms than dead organic matter but it is well known that grain stored under conditions which predispose it to heating loses its viability very rapidly. Recent researches indicate that the heating of soybeans is more or less proportional to the growth of microorganisms which in turn is related to the moisture and temperature. The condition known as "sick wheat" (in which the seed loses its viability and the germ darkens in color and becomes rancid) is probably due to bacteria growing in a limited supply of oxygen.

High moisture and high temperature (up to about 131 degrees F.) not only increase the respiratory rate of the grain and of microorganisms associated with it, but also favor insects. Dr. R. T. Cotton of the Bureau of Entomology, U.S.D.A., has pointed out that the common insect pests of stored grain cannot breed in grain containing 9% or less of moisture and the adults of many species soon die. Active breeding of most grain insects does not occur at temperatures below 70 degrees F.

INTER-SEED AIR MOVEMENT IN GRAIN

Recent studies by the Division of Agricultural Biochemistry, University of Minnesota, with soybeans stored in a commercial elevator have shown quite definitely that a movement of inter-seed air occurs. This evidence was obtained by inserting a pipe to a series of depths at each of four points in a bin which was then filled with soybeans. At intervals over a four-month period, temperature readings were taken and gas samples analyzed for each depth and point across the bin. The regions of highest carbon dioxide concentration did not coincide with the regions of high temperature. As heating occurs, the interseed air at the point decreases in density and rises. The hot air has a greated water absorptive capacity and when it diffuses into areas where the grain is cool, the saturation point of the air may be reached. The excess moisture will condense on the cold grain and raise its moisture to a point where conditions will be favorable for active respiration of the grain, the development of molds, fungi and insects. This movement of warm air of high moisture content and the precipitation of excess moisture in cold grain may well account for "hot spots" and localized insect development.

Metering Vs. "Guesstimating"

By W. F. Schaphorst

The modern trend is to meter everything of importance that can be metered. Not so many years ago, probably within the memory of every reader, there was scarcely a meter in any plant aside from the water meter, gas meter and electric meter.

Even the electric meter is old as compared with economizing meters that have been developed in recent years. Water, gas and electric meters were designed and installed solely for the purpose of "selling" water, gas and electricity to customers. They involved no thought of economy between the seller and the consumer. To install a private meter for measuring one's own steam consumption, or coal consumption, solely for the sake of knowing what was going on was considered as ridiculous as the installation of a cash register by a butcher who was himself the sole owner, dealer, helper, and janitor of the establishment. Today it is considered quite the thing for nearly every store, regardless of smallness or largeness, to have a private cash register, which is really a cash meter.

And similarly it has been found that it pays to know all about the steam, the CO_2, the draft, the temperature, and the coal and oil in one's own establishment regardless, almost, of size. The old method was to operate a plant by sheer force and wealth. There was but little check on anything. The owner or manager simply "guesstimated." If more fuel was needed it was ordered, paid for, and burned. The burning of 1,000 tons more of coal in one year than another was considered a sort of "act of God"—an unaccountable condition that had to be tolerated.

Today things are decidedly different. An accurate steam meter may be placed on the switchboard any distance from the boilers. The meter tells the entire story—past and present. There is no more "guesstimating" by the owner, manager or engineer regarding the amount of steam generated by the boilers and the amounts used in the various departments. Total generation and total consumption are carefully and accurately accounted for.

The pyrometer, on the same switchboard, tells the entire story, past and present, about temperatures in the chimney, in the furnace, of the superheater, or anything else of importance. No more "guesstimating" about temperature.

Draft, CO_2, and fuel are similarly metered and indicated and where desired permanent graphical records are made. There are indicators that show whether or not the boiler feed regulator is functioning, that show water level, smoke conditions, etc.

Today, as soon as any one of the recorders or indicators shows that things are "going wrong" it is a simple matter to rectify things because the engineer can instantly lay his finger on the cause of the change in conditions. The result is: fuel is saved. Fuel is expensive today, and it is becoming more expensive from year to year. It has been demonstrated time and again that indicators, meters and recorders can save much fuel. It is indeed a small plant that cannot make instruments of this type pay and pay BIG.

11,000 Farmers Report:

208 WHEAT VARIETIES GROWN ON U. S. FARMS; 11 DOMINATE

THERE are 208 distinct varieties of wheat grown on farms in the United States, according to a report, Circular No. 634, recently issued by the U. S. Department of Agriculture. This survey is the fifth in a series made at five-year intervals since 1919 and is based on some 11,000 questionnaires returned by farmers. Clark and Quisenberry, who prepared this report, state that the farmer crop reporters are becoming more "variety conscious," due to the emphasis being placed on varieties by the grain trade, experiment station and extension workers, farm papers, and by the wheat growers themselves.

Eleven varieties occupied more than 1,000,000 acres each. This list includes Turkey, Blackhull, Tenmarq and Kanred among hard red winter wheats, Fultz, Fulcaster, Trumbull and Kawvale (semi-hard) in the soft red winter wheat group, and Marquis, Ceres and Thatcher in the hard red spring wheat class. Turkey is the leading variety in four states, second in eight, third in three states.

What are the proportions of hard and soft wheat in Kansas, Oklahoma and Texas? The figures are 91.1 and 8.8% for Kansas, 91.1 and 8.9% for Oklahoma, 92.5 and 6.8% for Texas. For the United States the acreage of hard red winter wheat is more than twice that of any other class of wheat. The relative acreage of hard red winter wheat has increased from 32% in 1919 to 47% in 1939. The acreage of soft red winter wheat decreased from 30% in 1919 to 19% in 1939, a fact all too well known by soft wheat millers who now face a shortage of good soft wheat. The number of varieties of hard red winter wheat grown on farms has increased from only eight in 1919 to 37 in 1939. Turkey continues to be the most widely grown variety of wheat. In 1939 it was reported from 26 states, but the percentage of Turkey relative to other varieties of hard red winter wheat has decreased from 99% in 1919 to 42% in 1939.

Blackhull ranked second to Turkey in acreage in 1939, but has about reached the peak of its distribution.

Tenmarq was reported from 10 states with an estimated 3,500,000 acres, or about 12% of the hard red winter wheat acreage.

Kanred is losing popularity because of weak straw, and in 1939 comprised only 5% of the hard red winter wheat acreage.

Cheyenne was reported from Nebraska and eight other states. This variety ranks second to Turkey in Nebraska.

Iobred is reported from seven states. From 1934 to 1939 the acreage of this variety increased rapidly in Iowa, Illinois, Missouri, Nebraska and Kansas. Much of its increase in acreage is due to its resistance to stem rust.

Chiefkan is reported from Kansas, Oklahoma, Texas and several other states. This variety is susceptible to loose and stinking smut.

Early Blackhull is the earliest and probably the most winter-tender variety of hard red winter wheat being grown commercially. The increase of this variety has been due to good yields of grain with high test weight during recent dry years. In some years Early Blackhull wheat has been injured by late spring frosts.

Purkof has been included in the soft red winter wheat class in previous surveys, but is now classed as a hard wheat.

Leading states in the production of soft red winter wheat are Ohio, Indiana, Missouri, Illinois and Pennsylvania. The list of soft red winter wheats includes several new varieties: Clarkan, Early Premium, Leapland, Thorne, Canawa and Wabash. The number of varieties of soft red winter wheat grown on farms is much larger than for any other class, although the old sorts are dropping out faster than new ones are being introduced, thus reducing the number.

Kawvale, really a semi-hard wheat, but classed as a soft wheat under federal grain grades, is grown on more than 1,000,000 acres in Kansas, Missouri, Illinois, Oklahoma, Nebraska and Arkansas. The rapid increase in this variety is due to its early maturity, resistance to leaf rust, and to loose smut and moderate resistance to stem rust and Hessian fly. It yields well in spite of a tendency to shatter.

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Thirty-two varieties of hard red spring wheat are reported. Thatcher is the leading variety, having increased from only a small acreage in 1934 to 5,500,000 acres in 1939. This rapid increase has been due largely to resistance to stem rust. Due to the severe stem rust epidemics of 1935, 1937 and 1938, the acreage of Ceres and Marquis decreased rapidly, Thatcher and other rust-resistant varieties taking their place. Marquis is still a popular variety in Montana. Seven varieties of hard red spring wheat were reported for the first time in 1939. These are: Nordhougen, Renown, Great Northern, Coronation, Pilot, Rival and Apex.

Ten varieties of durum and red durum wheat are listed. Mindum ranks first in acreage.

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CONTINUOUS DESTRUCTION OF ALL INSECT LIFE

Be Sure That You'll Come Out Alive

By H. A. LILLEVIK

EDITOR'S NOTE—*The following article was adapted from a technical report in Cereal Chemistry by Mr. Lillevik, a member of the staff of the research department, Division of Agricultural Biochemistry, University of Minnesota.*

The old adage, "Look before you leap," should be revised to "test the air before you leap" to apply to mill and elevator employees who have occasion to enter grain bins containing grain that has been undisturbed for some time.

Several deaths have occurred from asphyxiation in closed grain bins, the most recent being in a bin containing flaxseed. Other deaths have occurred in bins containing oats, barley, kafir and corn.

All cereal grains are living organisms and in their life processes they "breathe." The chemical reaction that takes place in the kernels produces carbon dioxide gas.

If the grain when stored had a high moisture content, the production of carbon dioxide gas will be greatly increased through the action of bacteria and molds that develop on the grain. The high moisture content, plus the abnormally high temperature generated, create ideal conditions for bacterial development and action.

Carbon dioxide gas is colorless, odorless and is heavier than air. It tends to form a blanket over the grain and fills the interseed space. The senses of sight and smell will not detect its presence.

Analyses of the atmosphere in the grain bins after the deaths referred to above showed a high amount of carbon dioxide coupled with the low amount of oxygen.

Precautions should always be taken to ascertain whether the atmosphere over stored grain is safe before workmen are allowed to enter. The atmosphere may be conveniently tested by lowering a small animal or a fowl into the bin. If a lethal atmosphere is present the worker should be provided with a supplied-air type of respirator, such as a hosemask, or preferably the bin should be thoroughly ventilated and the atmosphere again tested to insure that the ventilation has been adequate.

In ventilating the bin, it is important to use a forced air fan or other device that will create good circulation. Opening doors or windows at the top of the bin will not suffice because the carbon dioxide gas is heavier than air and will remain at the bottom of the bin over the grain.

The common canister type gas mask is of no value in atmospheres where there is not sufficient oxygen to sustain life. Canister type masks only take out poisonous gases and are to be used only in atmosphere that does contain the normal amount of oxygen. In all deaths occurring in grain bins, it was a lack of oxygen that caused death.

Accidents of this type may be avoided by adopting the rule that under no circumstances should anyone enter a grain tank or bin without wearing a safety belt and having a second person on the outside to pull the individual out in case of trouble.

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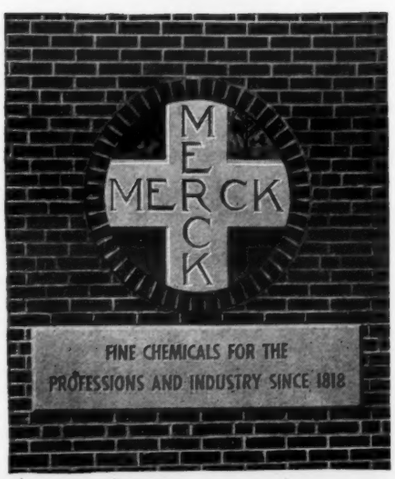


Milling Studies Show That

KERNEL SIZE IS AN IMPORTANT FACTOR

in Protein Spread, Ash, Yield

**By R. O. Pence,
Chairman, A. O. M.
Research Committee**

THE job of milling a "tailor-made" flour to satisfy protein and ash specifications sometimes turns out to be impossible, and all too often the mill manager after looking at the laboratory analysis report, suspects that something has gone wrong out in the mill.

For example, the grain buyer for a mill bought a car of wheat that tested 13.75% protein, paying a premium of 4½c bu for the higher protein. The premium amounted to 20¼c bbl of flour. The mill superintendent believed that this lot of wheat would be satisfactory in filling an order of flour that had to meet a protein specification of 12.5% and an ash of .42. Allowing a spread of 1.25% between the wheat and flour was sufficient—he thought. But he didn't consider the kernel size of the wheat.

Upon milling the wheat, the protein content of the flour was found to be only 12.3 to 12.4%, with an ash content of 0.42. The protein content could not be increased by leaving out some of the lower protein streams since they were also the low ash streams. If any of the low protein streams were omitted, up would go the ash content and the flour would then be rejected on the ash value instead of the protein.

The flour may not always be rejected, but on a declining market the buyer may complain about the inferior quality of the flour and demand a rebate, or reject the flour completely if his stock is sufficient to last him for a week or two. It is only on a rising or "seller's" market, that no trouble may be expected.

The cause of this higher differential between the wheat and flour protein may be in the distribution of the protein in the kernel, or the relationship of the relative size of the germ, or the thickness of the aleurone layer in the kernels to the amount of endosperm.

In plump kernels the percentage of the endosperm is high and the ratio of germ and aleurone layer to the endosperm is low. Hence, a smaller spread between wheat and flour is expected in plump kernels. In shriveled wheat the percentage of endosperm in relation to germ and aleurone layer is lower and the spread in protein between wheat and flour is usually greater than in plump wheat.

A research problem was undertaken last winter by the writer and his students to determine to what extent the protein and ash in wheat flour were influenced by the size of the wheat kernels. The two main points in the problem were (1) the relation between kernel size and protein spread; (2) the relation between kernel size and ash content. Obtaining a sample of sufficient size for milling on an experimental mill constituted the largest part of the physical work involved since in some cases the overs of the finest wire cloth used sometimes were as low as 5%. In order to obtain a 1,000-gram sample it was necessary to sift a bushel of wheat.

Several samples of the 1942 crop were sifted, using 8-, 10- and 12-wire to determine the percentage of small kernels in the different samples. The wheat from the 1942 crop was exceptionally plump and contained very little shriveled grain.

An abstract of the data obtained in the research problem is presented in the accompanying table. The following notes about the different samples are presented to assist the reader in getting a complete mental picture of the problem:

Abstract of data obtained with 12 samples of wheats used in the problem. In all instances the figures shown are the averages of all samples of each class.

Sample—	Test weight	Flour yield	Flour ash	Protein spread
Original wheat...	58.76	70.30	.442	1.12
Overs, 8-wire ...	60.09	72.86	.424	1.05
Overs, 10-wire...	57.14	67.37	.440	1.05
Overs, 12-wire ..	52.80	62.41	.548	1.37

Sample No. 1 graded No. 2 dark hard; protein 13.9%, ash 1.69. The overs of the 8 wire graded No. 1 dark hard, the overs of the 10 wire No. 2 dark hard, while the overs of the 12 wire graded No. 4 dark hard.

Sample No. 2 graded similar to sample No. 1. The protein was 11.4%, ash 1.59. The great difference in the samples, however, were the proportions of the overs in each of the screenings.

Sample No. 2 graded similar to samwinter with 60% remaining on the 8 wire, 36% on the 10 wire and 4% on the 12 wire. The overs of the 8 wire graded No. 2, but the overs of the 10 wire No. 3, and the overs of the 12 wire No. 5. The ash and proteins followed the same trends with the exception of the original sample in which the spread in protein is only .8 below that of the wheat.

Sample No. 4 is one of the high ash samples both in the wheat and flour. This sample graded No. 3 and showed considerable weather damage. However, it contained considerable shriveled grain which is the reason for the 19% on the overs of the 12 wire, 54% on the 8 wire and 27% on the 10 wire. The overs of the 8 wire graded No. 2, the overs of the 10 wire No. 3 and the overs of the 12 wire sample grade. The yields were lower in all the samples in comparison to similar samples with the exception of the overs of the 8 wire which compared very favorably with the over of the 8 wire on samples 2 and 3. The spread in protein is 1.1 with the exception of the overs of the 12 wire which is 1.3%.

Sample No. 5 compares with sample No. 2 in size of the kernels as shown by the per cent overs of the various sieves. The protein of the wheat is about 1% higher but the ash is around .50 in all four tests on the sample. The protein spread is higher on the original than the rest of the data would indicate, as the spread on the overs of the 8 wire and 10 wire are much lower. This sample evidently carried very high ash throughout the endosperm.

Sample No. 6, although it graded No. 1 dark hard winter, 68.3% of it passed through the 8 wire, 62.7% remained on the 10 wire, while only 31.7% on the 8 wire and 5.6% on the 12 wire. The overs of the 8 and 10 wires graded No. 1 dark hard wheat while the overs of the 12 wire No. 4 dark hard. The protein of this sample and subsamples compared very close to sample No. 1. The ash is about .1% higher. The flour yields were very low. Also the low protein spread on the original and overs of the 8 and 10 wire indicated not very close grinding or a very clean bran. This sample seems to be the most abnormal of all due to its very poor yielding capacity.

Let us consider what the effects would be if samples were analyzed and blended for a different wheat mix. In order to make some determinations along this line three samples of wheat were secured to be used in blending. The one sample contained 12% protein, the other two approximately 15.5%. The low protein wheat was to be used in each of the mixes while just one of the other constituted the other part of the mix.

Sample No. 7 had 12% protein and 59.8 lbs per bushel test weight, No. 8 had 15.5% protein and 56.5 lbs per bu test weight, and No. 10 also had 15.5% protein but 59.2 lbs per bushel test weight. In making blends using 50% of samples 7 and 8 or 7 and 10, the protein content of the mix should be 13.75%.

Sample No. 8 contained considerable shriveled grain which is shown by the test weights of the overs of the various sieves. The only exception was the overs of the No. 10 wire which was more plump and contained less shriveled grain. From these blends it was desired to secure a straight flour of 12.5% protein and an ash content of .42%.

Sample No. 7 graded No. 2 dark hard winter wheat with a test weight of 59.8 lbs per bushel. The flour yield is normal with a protein content of 10.9% and an ash of .42. The distribution was 70% over the 8 wire with a test weight of 61 lbs and graded No. 1 dark hard winter. The flour from this portion contained 10.5% protein and .40% ash. The overs of the 10 wire was 26.4% with a test weight of 57 lbs and a protein content of 11.9 and an ash content of .44% in the flour. Only 3% remained on the 12 wire with a test weight of 53 lbs per bushel and the flour analysis showed a spread of 1.5% protein with a high ash of .58%.

Sample No. 8 is the one that contained considerable shriveled grain. The test weight was 56.5 lbs per bushel, the pro-

A Few Facts Emphasized by this Research

1. A higher spread in the protein content of wheat and flour may be expected if the wheat contains an appreciable amount of shriveled grain.

2. Shriveled grain will increase the ash content of the finished flour and the amount of wheat required to make a barrel of flour will be greater.

3. The wheat buyer needs to know more about a sample of wheat than grade and protein content as determined by present grading systems.

4. Test weight of wheat is no indication of flour yield or flour quality.

5. There is a need for more complete wheat surveys that are available to the general public.

6. Certain classes of wheats should be branded as feed wheat and sold as such.

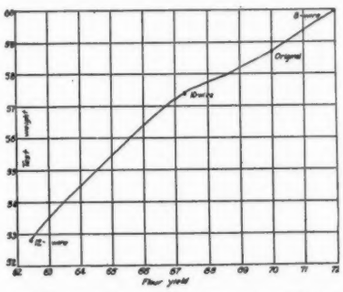


FIG. 1.—This graph shows the relation between the test weight and flour yield of the different samples milled. The samples milled from the overs of the 12-wire were lowest in test weight and flour yield, while the overs of the 8-wire, testing 60 lbs per bu, produced the highest yield.

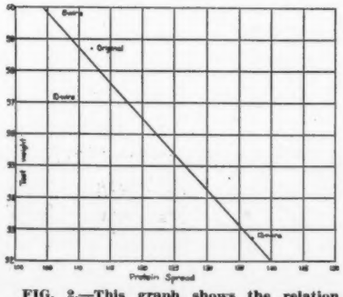


FIG. 2.—This graph shows the relation between test weight and the protein spread between the wheat and flour. The same trend as shown in Fig. 1 is present in this graph; low test weight wheat, in addition to having low flour yield, also shows the largest protein spread.

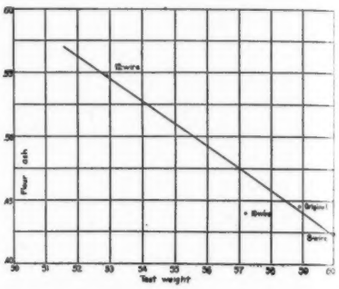


FIG. 3.—The relation between test weight and flour ash is shown in this graph. Notice that the heaviest wheat produced flour with the lowest ash while low test weight wheat showed the highest ash.

tein of the wheat was 15.5% and when milled the flour contained 14.3% protein and an ash of .44%. In sifting this sample 45% with a test weight of 58 lbs per bushel were the overs of the 8 wire, 46% over the 10 wire and 8.5% over the 12 wire. Although the grain was shriveled it did not contain a high per cent of small kernels on the 12 wire cloth. The only portion of this sample that milled a flour with less than .42 ash was the overs of the 8 wire. This makes it an undesirable sample for blending to manufacture the desired flour.

Sample No. 9 was a 50-50 blend of 7 and 8. Although the wheat graded No. 2 dark hard winter, it is undesirable because the yield and protein content was too low while the ash content was too high.

Sample No. 10 graded No. 2 hard winter. When sifted the distribution was 61.3% over 8 wire, 31.4% over 10 wire and 7.2% over the 12 wire. The flour yields were good on the overs of the 8 and 10 wire, while the overs of the 12 was lower but good for the overs of the sieve. The ash content was lower than the specifications in the blended flour requirements and the protein spread was normal.

Sample No. 11 which is a 50-50 blend of 7 and 10, produced a flour that met the specifications and the analysis of the wheat and flour from the sifted samples fitted into the mean of the two samples blended.

♦ ♦

EDITOR'S NOTE—*The above article was the basis of a report presented by Mr. Pence at the annual convention of the Association of Operative Millers in Kansas City. Mr. Pence is milling technologist on the staff of the Kansas Agricultural Experiment Station at Manhattan and the research was conducted by him with the assistance of students in the Department of Milling Industry at the college.*

——BREAD IS THE STAFF OF LIFE——

The Color of Wheat

WITH few exceptions, all wheats have berries which are classified as "white," "yellow," "red" or "amber." John Percival, an eminent English botanist, says in his monograph, "The Wheat Plant," that the particular shade of color exhibited by the grain is dependent not only upon the amount of color in the bran layer which carries the color pigment, but upon the thickness, tint and degree of transparency of other bran layers and the nature of the flour-bearing "endosperm." This endosperm is sometimes flinty and translucent, resembling dried glue, and sometimes it is "mealy" and opaque. That is, when the berries are cut, the surfaces reflect back much of the light, making them appear white or creamy yellow.

If we define wheat "strength" as the quantity of proteins contained in the flour-producing endosperms (and it seems logical to do this, although some technologists favor a definition which makes a flour "weak" if it carries a large percentage of gluten, but for one reason or another does not perform satisfactorily in the baking process), it may be said that the strong wheats generally have hard, flinty endosperms and are designated "vitreous." Of the "red" types, strength usually follows a darkening of color—so much so that "dark hard winter" and "dark northern spring" lead the subclasses of hard red wheats under the United States grain grading standards. The class "soft red winter" usually has soft and opaque endosperms, although they are not as much so as the endosperms of "club" wheats. White wheats of the "club" type are very soft, but there are vitreous hard white wheats, the berries of which have a somewhat different appearance, showing some indication of the translucency of the endosperms.

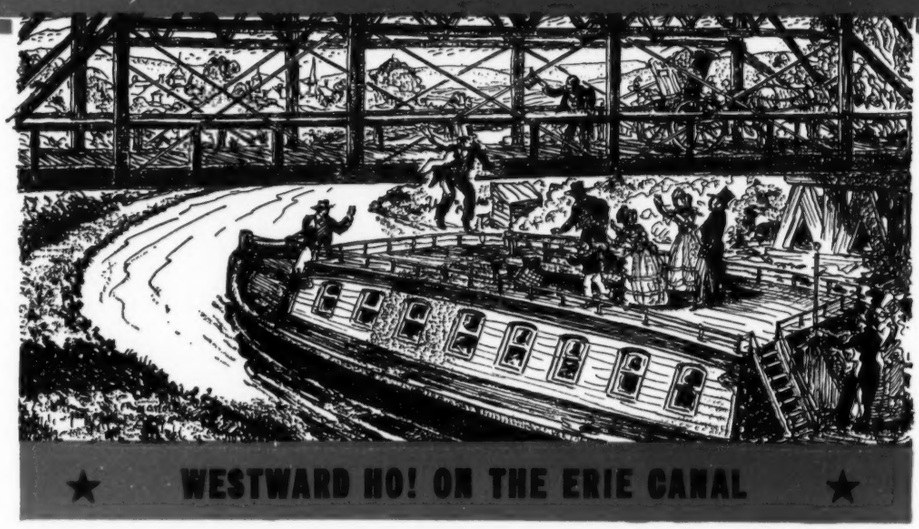
There are red and amber durums. Both are vitreous. Berries of Triticum Dicoccum, emmer, are, according to Percival, flinty, or vitreous, and those of the spelt species, which includes a wild grass from which the first wheats may have sprung, are vitreous or semi-vitreous.

In the commercial bread wheats there are often berries which have endosperms partly vitreous and partly mealy, and there are even varieties of durum wheat in which the berries are spotted. Hard and vitreous bread wheats are inclined to lose their hardness under certain conditions of climate and soil, and "yellow hard winter" is a subclass of hard red winter. Such wheats carrying more than 25%, but less than 75%, of dark, hard and vitreous kernels, are termed "ordinary," and kernels of bread wheats that are partly vitreous and partly mealy are often called "mugwump," "mongrel" or "yellowberry."

——BREAD IS THE STAFF OF LIFE——

The first place to look for variation in diastatic activity is in the wheat mix. The diastatic activity of wheat differs just as the protein or ash differs.

THE PARADE OF THE PIONEERS



★ WESTWARD HO! ON THE ERIE CANAL ★

After 1823, many a traveler to the expanding western states made his way as far as Buffalo over the Erie Canal. The Packet Boats could only go as fast as the mules could pull and often a passenger missing a boat at the town landing could jump aboard off the next bridge with the friendly aid of a hurried carriage trip.

On the road to 100% all-out production, millers can not afford to "miss the boat" on any manufacturing detail. Keep every piece of machinery in shape for maximum efficiency, which means clothing reels and sifters with fine SWISS SILK, the long life Bolting Cloth that calls for fewer shutdowns and better production records at utmost economy.

Specify "SWISS SILK"

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MORE ON "CANADA APPROVED" BREAD

* * * * * * * * * *

Dr. R. C. Sherwood Comments on Comparative Merits of Dominion and U. S. Vitaminization Programs—A. W. Alcock Replies to Canada's Deputy Minister of Health

EDITOR'S NOTE.—In the June 16 issue of this journal there was published a news service account of bread enrichment studies made by the British Ministry of Food and reported upon by Dr. J. C. Drummond, professor of biochemistry at the University of London and advisor to the ministry. Dr. Drummond's conclusion was that the official high-vitamin loaf of Canada is superior to the enriched loaf of the United States and that it probably is "the prototype of the bread of the future." The contrary opinions of a number of American nutritionists were published in connection with this report, and to the same subject and with the same general point of view Dr. Sherwood now addresses himself. Dr. Sherwood is assistant chief of the Civilian Food Requirements Branch of the Food Distribution Administration . . . In connection with the Drummond report there appeared a letter to this journal from Dr. R. E. Wodehouse, deputy minister of the Department of Pensions and National Health, Ottawa, Ont., taking exception to some of the views expressed by A. W. Alcock, chief chemist of the Western Canada Flour Mills Co., Ltd. To this letter Mr. Alcock offers a reply, which is published herewith.

* *

Dr. Sherwood:

WHETHER the bread now approved by the Canadian government is indeed the "prototype of the bread of the future" will probably be determined by consumers. Indications based on current production of flour and bread in the United States and Canada point to far better acceptance for United States enriched flour. This statement is based upon the relative amounts of enriched and unenriched flour and bread made in the two countries. Surveys in 1942 showed that approximately three-quarters of the white flour and white bread in the United States was enriched, whereas reports from Canada suggested that only a very small percentage of the flour conformed with the standard for "Canada approved" flour. No comparison can be made between the wheat meal bread of Great Britain and the breads of the United States and Canada from the standpoint of consumer preference because of the obviously justifiable British requirement that during wartime their domestic bread conform to the specifications established for it.

A few comments concerning the actual vitamin content of United States enriched flour compared to "Canada approved" flour appear to be pertinent.

It is well known in flour milling circles, and elsewhere to some extent, that the vitamins and minerals are not uniformly distributed in the wheat kernel. It has also been known for some time that flour richer than patent flour in several vitamins and minerals can be made by suitable modification of the milling procedure which will divert certain mill streams to white flour, thus producing a long extraction flour.

Since many years of experience has shown greater consumer preference in the United States for short extraction than for long extraction flour, the existing plan of enriching flour with added vitamins and minerals was adopted here. There is nothing in this action which interferes with any mills making a long extraction flour by utilizing the mill streams that are richest in vitamins, or with making any suitable combination of long extraction flour and partial enrichment with synthetic vitamins and mineral compounds, as long as the finished product conforms with the federal definition.

The Canadian government has not approved the addition of synthetic vitamins, but instead has urged Canadian millers to make long extraction flour, and in accordance with Canadian reports "Canadian Approved" flour contains a minimum of 1.2 mg of thiamine per pound.

When one looks at the relative merits of United States enriched bread and "Canada Approved" bread, several factors must be considered. In thiamine content, enriched bread made in the United States is superior to Canada ap-

FLOUR AND BREAD
ENRICHMENT
WITH PURE VITAMINS

AS a result of the investigations of the research chemist, the pure vitamins themselves are available as an economical means of flour and bread enrichment.

In addition to economy, however, these pure substances possess numerous other advantages: —

They are non-hygroscopic and free-flowing and consequently easy to incorporate.

Conforming to U.S. Pharmacopoeia standards, these pure vitamins are of unvarying composition.

They contain no extraneous substances which might vary in amount with consequent unforeseen effects on the final product.

Using these pure products there is no question as to the amount introduced, since it is not subject to the unavoidable experimental errors resulting from the assay required for other sources. In consequence the danger of under — or over — enrichment is avoided.

For flour and bread enrichment Chas. Pfizer & Co. offer Thiamine Hydrochloride U.S.P. (Vitamin B_1) and Riboflavin (Vitamin B_2, formerly termed Vitamin G). Our products are milled to fine powders of uniform size, which facilitates thorough mixing, and are not removed by subsequent sifting operations.

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MANUFACTURING CHEMISTS • ESTABLISHED 1849

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From Half-way 'Round the World

Rubber . . . Tin . . . Coffee . . . Jute . . . Until Pearl Harbor we took for granted many important items such as these.

Percy Kent's supply of jute for highest quality bags has always come from areas near Calcutta, India — traveling through the Indian Ocean to the Red Sea, through the Suez, into the Mediterranean and then across the Atlantic Ocean.

Despite wartime difficulties of oceanic transport, Percy Kent continues to get supplies of jute from India—after the needs of the armed forces have been met. Military requirements sometimes necessitate the use of substitute materials. These, too, are carefully selected and processed in line with the Percy Kent Bag Company's 57-year standards of superiority.

And when the seas are cleared of aggression, the complete needs of our many customers will again be filled with bags made of the world's best jute—coming from half-way 'round the world to the Percy Kent Bag Company.

PK

PERCY KENT BAG COMPANY, INC.

JOHN H. PEEK, President RICHARD K. PEEK, Vice-President A. O. PEEK, Secretary

proved bread because, obviously, the thiamine content of bread made with flour containing 1.66 mg of thiamine will be 40% higher than that of bread made with flour containing 1.2 mg of thiamine, unless perchance the latter is made with enriched yeast or vitamin tablets.

The vitamin and iron superiority of United States enriched flour and bread will be much more striking in the near future when riboflavin is required, as is now proposed, and the recently proposed levels of thiamine, niacin and iron become effective. Then the minimum standard for enriched flour will be, per pound, 2.0 mg thiamine; 16.0 mg niacin; 1.2 mg riboflavin; 13.0 mg iron, and enriched bread will contain, per pound, not less than 1.1 mg thiamine; 0.7 mg riboflavin; 10 mg niacin, and 8 mg iron. The bread approved in Canada will contain about 60% of this amount of thiamine and much less riboflavin, niacin, and iron. There is no difference in the caloric value when made with the same dough formulas.

If comparisons of the United States enriched and "Canada Approved" breads are made on the basis of flavor, color and palatability in general, decision as to superiority becomes more or less a personal one. Personal preference largely governs choice of types of bread when the opportunity exists to freely choose.

v v

Mr. Alcock:

Dr. R. E. Wodehouse, deputy minister of the Department of Pensions and National Health, criticizes certain statements made by me in an article entitled "Stalemate in Canadian Flour Enrichment" (THE NORTHWESTERN MILLER—MILLING PRODUCTION SECTION, April 14, 1943). Opinion on the points at issue is not of mere personal or academic importance. It determines policies which influence the nutritive value of our most important food material, and for this reason perhaps you will allow me space to discuss the criticisms made by Dr. Wodehouse and thus, I hope, extend a little further the search for truth which we both pursue.

I will consider the various points to which Dr. Wodehouse takes exception in the order in which he discusses them.

(a) The Order-in-Council requiring a minimum of 400 IU of B-1 per lb in Vitamin B white flour, even though a tolerance of 10% was allowed, was criticized by representatives of the milling industry on Jan. 12, 1942, when they met the Honorable, the Minister of Pensions and National Health, the deputy minister and officials of the department. Anyone with experience in the determination of B-1, and who knows something of the variations to which the results of all milling operations are subject, will agree that a miller must aim for at least 400 IU of B-1 per lb in long extraction flour in order to be sure that when his samples are officially tested, they will be found to contain not less than 360 IU per lb. At the meeting referred to, the millers expressed the belief that a flour milled to meet these specifications was unlikely to prove satisfactory to consumers, and urged that the legal minimum be reduced to 360 IU per lb with a "normal" tolerance. I was not present at that meeting, but the above information is taken from the record kept by the secretary of the Canadian National Millers Association, and formed the basis for my statement that millers tried to have the minimum thiamine content reduced from 1.2 to 1.08 mg per lb (400 to 360 IU of B-1 per lb.)

(b) In my article I said "the available information indicates that, from April 1 to Dec. 31, sales of Vitamin B white flour constituted 7% of the total domestic flour sales of the larger milling companies." Dr. Wodehouse considers that I underestimated the consumer acceptance of this flour. He bases his opinion upon information collected from bakers in five cities who reported that 25.8% of the bread they sold was Vitamin B white bread.

More complete information recently released by the department indicates that in 18 cities Vitamin B white bread constituted 21.8% of the bread made by bakers. Now, according to the data of the Dominion Bureau of Statistics, about 45% of the flour consumed in Canada is used in commercial bakeries. If, therefore, all the bakers in the country used Vitamin B white flour in the same proportion as city bakers, their consumption of this flour would amount to 9.8% (21.8% of 45%) of all the flour used in Canada. But bakers in the smaller centers do *not* use Vitamin B white flour in that proportion, and since sales of the flour for household use are almost negligible, it seems quite certain that we are justified in saying that sales of Vitamin B white flour constitute *less than 9.8%* of the total flour sales.

My estimate of 7% was based upon the replies I received to a question addressed to the larger milling companies asking what percentages of their total flour sales consisted of Vitamin B white flour. I had no foundation on which to weigh the figures received according to

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a vitamin miser that prevents careless loss—

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EXACT CHECK

This simple indicator shows you at a glance if the material you are feeding is being fed in the exact quantity desired. No weigh-up, no worry about a stoppage.

INSTANT CONTROL

For the busy miller, controls must be simple and quick. In an instant you can increase or decrease the feeding rate of the OMEGA to the exact amount you wish—just move the indicator. No worry about inexperienced operators. Anyone can run it.

THE MISER AT WORK

Nothing is more maddening to a miller than to suspect that too much vitamin, too much malt, or too much bleach, is being added to his flour. This accurately machined "miser" disk makes no mistakes. Every pound of your flour will stand rigid laboratory inspection.

- Percentage adjustment
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actual quantities of flour sold, and 7% therefore represented the *unweighed* mean of the reported data. It is interesting to find that the department's figures, when properly interpreted, lead to an answer in substantial agreement with my estimate.

(c) The warning with regard to the keeping qualities of long extraction flours given by the millers in 1941, was based on general experience with low grade flours which had been crystallized in a statement made by Dr. C. H. Bailey before the Federal Security Administrator in 1940. Dr. Bailey said that, in long extraction flours, the life cycle of insects was relatively short, and that when we come to deal with these flours, the problem of insect infestation and general spoilage becomes sharply enhanced.

(d) Dr. Wodehouse says "nutritionally the value of this flour has been greatly underestimated by Mr. Alcock." He gives the B-1 content of Vitamin B white flour as 1.2 mg per lb. The value I used was 1.13 mg per lb. Considering the department's figure is on an "as found" basis, and our results are corrected to a moisture basis of 13.5%, the two values are in almost perfect agreement. I have not, therefore, underestimated the B-1 content of Vitamin B white flour, and since my statement also gave the quantities of riboflavin, niacin and pantothenic acid, it provided a much truer and more complete picture of the nutritive value of the flour than does Dr. Wodehouse, who confines his attention to B-1 only.

I must, however, admit that a survey of all our data shows that the value I used for the B-1 content of regular bakers' flour (0.64 mg per lb) was too high, and that the figure given by Dr. Wodehouse (0.52 mg per lb) is more nearly correct. If we take the department's values as a basis for calculation, we find that with sales at 700,000 bbls a year, the use of Vitamin B white flour has increased the annual per capita intake of B-1 by less than 8 mg. This is equivalent to 6 or 7 IU a day, instead of 4 or 5 IU as I originally stated. How important this discrepancy is in relation to an estimated daily deficiency of 200 IU, I will leave the reader to judge.

The "annual per capita intake" just mentioned is not as meaningless as Dr. Wodehouse suggests. The expression surely has a statistical meaning. But if it is more acceptable, I am quite ready, in order to secure greater precision, to amend the statement to read, "at the present rate of consumption of Vitamin B white flour, the increased thiamine intake resulting from the use of the flour serves to overcome only 3 to 4% of the dietary deficiency of this vitamin in the population as a whole." In any attempt to measure the success or failure of the department's program, the additional amounts of the B vitamins provided by Vitamin B white flour *and* the extent to which the flour goes into consumption must both be considered.

(e) Most mills are still producing their Vitamin B white flour from mixtures containing substantial percentages of 1941 wheat and it now seems probable that they will go on doing so until the 1943 crop becomes available. Furthermore, since my article was written, we have found some evidence that the 1942 crop wheat, as well as being lower in vitamin content, is also somewhat lower in ash. Nevertheless, the use of this wheat has generally caused increases in the ash content or decreases in the vitamin content of Vitamin B white flour. Average results for the Vitamin B white flour produced at this mill (St. Boniface) for the same months in 1942 and 1943 are as follows:

	1942		1943	
	Ash	B_1	Ash	B_1
April	.585	394	.635	385
May	.575	406	.60	366

Other Canadian mill chemists tell me that their experience has been somewhat similar, though I do not suppose that this holds true for every mill.

(f) Since I am not acquainted with the operations of the mill in question, I cannot comment on this statement. It is perhaps worthwhile to mention that mills in southern Alberta, our own included, produce Vitamin B white flour having a more favorable vitamin-ash ratio and a better color than plants in other parts of the country belonging to the same companies.

(g) Neither in my article nor elsewhere have I advocated any attempt "to correct all dietary deficiencies by additions to flour and bread," and this, therefore, is not a point of difference between Dr. Wodehouse and myself. Many millers and bakers in this country are concerned over the fact that their activities contribute to the existing thiamine deficiency, which, according to Dr. Pett of the Department of Pensions and National Health, is so great that it could not be corrected even by the complete substitution of whole wheat for white flour. It is true that like all manufacturers, millers and bakers simply make the products demanded by their customers. Any other course would soon lead to bankruptcy. But as food man-

(Continued on page 18a.)

XC

ADDED TO

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Gets these results . . .

BETTER BAKING

. . . results when X-C is added at the rate of one pound to the barrel of flour. X-C Calcium Phosphate has enough acidity to help offset alkalinity often found in home-baked products.

. . . BETTER HEALTH

results because a pound of X-C to the barrel of flour gives more than enough healthful bone-building calcium to meet government standards for *calcium enriched* flour.

. . . BETTER SALES

result because the addition of X-C Calcium Phosphate to your flour gives these two potent selling points: (1) Foods baked from flour with X-C added are more healthful and (2) flour plus X-C produces better baking results.

X-C Calcium Phosphate is exceptional in quality because it is produced from heart-of-the-vein, food-grade lime and phosphoric acid that tests better than 99.9% pure. It is *extra rich* in calcium!

You can add X-C easily and economically in the same type of batch mixers used for self-rising flours, or, it can be fed directly into the flour stream by any of a number of feeders on the market.

Even though X-C Calcium Phosphate gives your flour *extra quality* it costs no more than ordinary phosphates in phosphated, all-purpose flours.

For samples and complete details, write: MONSANTO CHEMICAL COMPANY, Phosphate Division, St. Louis, Mo.

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PRODUCERS OF ENRICHED FLOUR

Vitamin B_1 is destroyed by excess alkalinity. By adding X-C Calcium Phosphate to your flour you keep it on the acid side and may save as much as 50% of the B_1 lost in baking!

THE FEED PLANT IN WARTIME

* * * * *

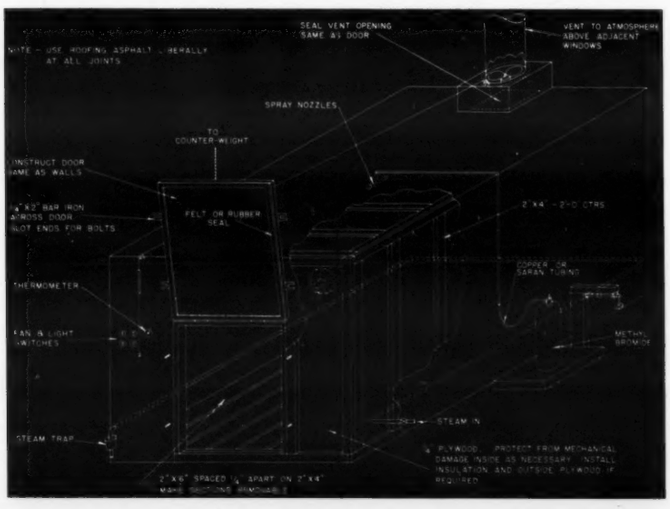
Fumigation Vaults Help Curb Infestation Losses

THE depredations of insects are always costly, and at no time is failure to take steps necessary to prevent them justifiable. Now, however, with conservation of feedingstuffs carrying the weight of a "must" in the program we have laid out for the preservation of the lives of ourselves and our associates and the discomfiture of our common enemy, it is necessary to examine carefully every source of possible waste, and eliminate it.

Whatever measures may be taken to rid mills of insect infestation, admittedly a source of waste, reinfestation must be guarded against by making sure that nothing that comes into the plant carries either insects or their larvae or their eggs. Used bags are known to be dangerous in this respect, and it is considered good—and necessary—practice to subject them to conditions which will make the persistence of insect life, in any form, impossible.

A well-constructed fumigation chamber offers economical means for doing this. Properly made, a so-called "atmospheric" vault, or chamber, will produce satisfactory results when correctly used. The chamber should, of course, be absolutely tight, for even the most deadly gas is an efficient insecticide only when its concentration is adequate. The primary purpose of the vault or chamber is to confine the fumigant and thus permit adequate concentration with the smallest possible amount of gas. In this chamber bales of empty bags, or anything suspected of carrying insect life, may be easily placed for treatment, for approved fumigants have the power to penetrate deeply and kill with certainty if present in sufficient amount and for a sufficient period of time.

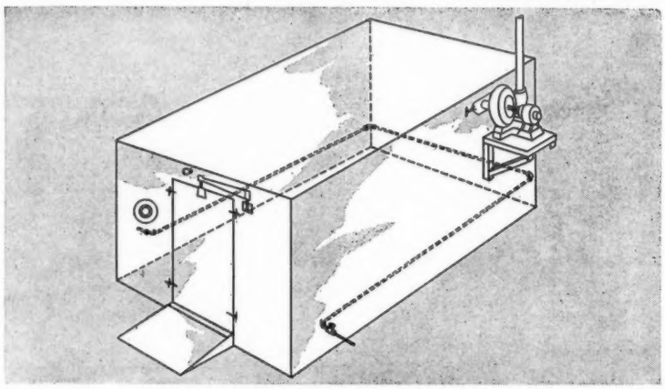
A number of lethal gases are used in vault fumigation, among them chlorpicrin, hydrocyanic acid gas, and methyl bromide. Any of them may be used safely in a properly constructed "atmospheric" vault or chamber, and all require that the chamber be tight. Suggested details for the construction of such a chamber are here presented, as Fig. 1, through the courtesy of the Dow Chemical Co. Alteration would, of course, have to be made to accommodate different circumstances, but the general procedure of construction can be readily followed.



(Courtesy of Dow Chemical Co.)
Fig. 1

It will be noted that provision is made for heating the space when fumigation is carried on in cold weather. A small circulating fan is suggested, as is also an exhaust fan to discharge the gas-laden air and bring in fresh air after the fumigating operation is completed. The wall construction is plainly indicated in the drawing, and the same general design can be followed whatever the size required. The keynote is tightness that will be preserved. In securing this, roofing asphalt and roofing paper are used liberally.

Fig. 2 represents another type of construction, presented through the courtesy of American Cyanamid & Chemical Corp. As described, this chamber may be made of 1x8" tongue-and-groove boards of good quality on 2x4" studding and rafters, set 22" apart. The entire chamber should be lined with sheet metal, with seams soldered. A lattice platform is provided to lay over the tin floor, and the materials to be fumigated are placed on this platform, so that the gas can reach them from every direction. A good, heavy door, arranged to be closed tightly, is provided. There should be a small exhaust fan capable of ventilating the chamber in a short time after the fumigation is done.



(Courtesy of American Cyanamid & Chemical Corp.)
Fig. 2

Another type of chamber may be made of bricks or concrete blocks. When possible to build in a corner of a warehouse or other suitable building, the walls of the building may form two walls of the chamber. Lining with sheet metal is not necessary with this type of construction, but the porous walls must be made impermeable. This can be accomplished by coating them with hard-face finishing cement, which should be suitably sized after drying. Two or three coats of asphaltum varnish should then be applied.

Care must be taken to make the door and its setting completely tight. The wooden frame must be calked carefully where it meets the brick or concrete walls by the liberal use of roofing asphalt. The door itself should be provided with a rubber seal, if obtainable, but felt may be used if carefully applied.

Operation of a fumigation vault or chamber is not at all complicated. The materials to be treated are placed in the space provided, the door or doors are closed, the fumigant is introduced, and the materials and lethal gas are left alone for a sufficient period of time—usually overnight. When the job is done, the exhaust fan (which should discharge outside the building) is started and the door opened just enough to permit fresh air to enter the compartment, to take the place of that discharged by the fan. Ventilation should continue long enough to insure the elimination of all the gas-laden air before anyone is permitted to enter the chamber.

It is possible to destroy all insect life in bales of bags by this procedure. If the operation is carefully carried out, using a sufficient amount of an approved fumigant, you may be absolutely certain that neither adult insect, larva or egg will get into the mill alive—with used bags. This in itself will not guarantee insect-free premises, of course, but it will unquestionably eliminate one of the major sources of infestation.

SAFETY IN FOREMANSHIP

Suggestions from the National Safety Council

ONE OF the most important qualifications of a good foreman is the ability to carry out the safety program of his company. He appreciates the importance of safety because the prevention of accidents keeps his working force complete, maintains production, prevents waste and eliminates unnecessary pain and suffering among workers and their families.

Three phases of the foreman's job which contribute most directly to the prevention of accidents are good housekeeping, job training and accident investigation.

Good housekeeping produces good work habits. It is an important step toward maintaining a safe and healthful working place for the employee, who is more eager to accept the accident prevention program if he sees physical evidence of the company's sincere interest in his work.

With respect to job training, the progressive foreman realizes that the employee must understand his job thoroughly in order to work safely. The foreman might carry out his training program in the following way:

1. Giving clear, detailed instructions and demonstration.
2. Allowing the employee to try the operation.
3. Repeating the procedure and correcting mistakes made by the employee on his trial.
4. Encouraging questions from the employee.
5. Pointing out hazards and explaining how they can be avoided.
6. Stressing *quality* of work rather than *quantity*.
7. Following up the training period with frequent contacts with the employee, especially during the first weeks of employment.

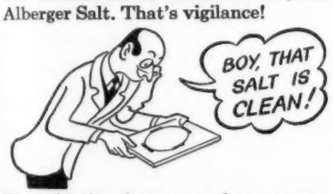
The best precaution against recurrence of an accident is to eliminate the cause. Ninety-eight per cent of all accidents can be prevented, because the cause can be controlled. To determine the cause, the foreman must investigate the accident promptly after it occurs. A delay may make it impossible to get all the facts, since conditions change quickly and details are soon forgotten. Perhaps the accident was caused by some physical hazard, such as improper layout or inadequate guarding. If the responsibility rests with the employee, it may be that he does not fully understand his job. Investigation may lead to the need for determining what his activities were on the previous evening or whether he has domestic difficulties or grievances against the company. In seeking such information, the foreman will be wise to avoid any use of the word "carelessness." Reasonable and satisfactory conclusions obtained as a result of the investigation should be followed by definite corrective action.

The modern foreman in modern industry has many important assignments which he must master—among them is accident prevention.

Our ears are clean

CLEANLINESS is an acquired characteristic. It doesn't happen by chance. Ever know a small boy to wash his ears willingly? Of course not! That's why kids have to stand inspection every morning before they trudge off to school.

It's the same way in the salt business. We've learned through experience that unceasing vigilance is the price of real cleanliness. That's why Diamond Crystal Salt "stands inspection" constantly. Fact is, in our quality control laboratory, *twelve* times per hour, *twenty-four hours per day*, filter pad tests prove the cleanliness of Diamond Crystal Alberger Salt. That's vigilance!



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Cereal Chemistry

(Continued from page 3a.)

fats have marked effects on baking quality.

ELEMENTS PRESENT IN PROTEIN

Of all the elements in wheat, nitrogen has received the most study. Nitrogen is the key element in protein which confers on wheat its distinctive characteristics as a bread grain. The term protein includes all the compounds in wheat which contain nitrogen. In addition to nitrogen these compounds contain sulfur and some, notably those in the bran and germ, also contain phosphorous. These are in addition to the carbon, hydrogen and oxygen. The presence of five or six elements in a compound makes possible a much more complicated structure than is possible with only the three elements such as in the carbohydrates; consequently the structure of wheat protein is much more complex.

THE DRY MATTER IN WHEAT

It is convenient to divide into groups the various compounds which occur in wheat or in cereal products. Thus if a ground portion of wheat or flour is completely dried under specified conditions, the weight is decreased and this loss is calculated as percentage of moisture. In wheat this is usually about 12%. The difference between this and 100% is the percentage of dry matter or dry substance. The dry matter contains all the compounds of food values and is what should really count in commercial transactions.

ASH OR INCOMBUSTIBLE MATTER

If the dry matter is heated at a high temperature by far the greater portion will be volatilized or burned and what remains is the incombustible portion known as ash. By this means the dry matter is separated into two portions: Organic matter which will burn and the inorganic which will not burn.

NITROGENOUS AND NON-NITROGENOUS MATTER

The organic matter may be further divided into the nitrogenous and the non-nitrogenous by determining the percentage of nitrogen and multiplying this by the factor 5.7.

The nitrogenous matter is practically the same as total protein. The nonnitrogenous matter includes the carbohydrates and the fats as well as several other compounds.

ETHER EXTRACT IN FLOUR

Fats are soluble in ethyl ether or other fat solvents. Therefore the amount of fat in wheat or flour is obtained by extracting with ethyl ether under specified conditions. Since what is obtained in this way contains some materials which are not true fat, the term "ether extract" is used. The extract obtained from flour is a yellowish oil.

CRUDE FIBER CONTENT

If the material after extraction with ether is boiled, first in dilute sulfuric acid and then in dilute alkali, most of the material will be djssolved. What remains after this severe treatment is known as crude fiber and is largely cellulose. Most of this is found in the

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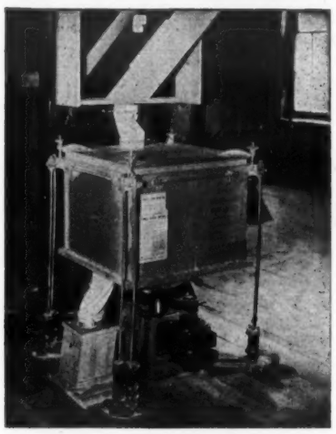

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outer layers of the wheat kernels and very little in the endosperm.

NITROGEN FREE EXTRACT

The starch, sugar, and other compounds not included in the foregoing procedures are usually obtained by difference and not by direct analyses. The amounts of water, protein, ash, fat and crude fiber are added together and their sum is subtracted from 100. The figure for the difference is known as the percent of nitrogen free extract. This simply means that this material contains no nitrogenous matter. The nitrogen free extract includes most of the matter in wheat as can be seen from the following analysis of the composition of an average wheat.

Material	Per cent
Moisture	12.0
Ash	1.8
Protein	12.0
Crude fiber	2.2
Fat	2.1
Nitrogen free extract	69.9
Total	100.0

By far the greater part of nitrogen free extract from wheat is starch with small amounts of other carbohydrates. In fact carbohydrates or starch are often used instead of the term nitrogen free extract.

v v

"Significance of the moisture determination" will be discussed by Doctor Swanson in the next issue of this journal. It and succeeding articles will serve to give the operative miller a better understanding of the cereal chemistry phase of the milling and baking industry.

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Canada Approved Bread

(Continued from page 15a.)

ufacturers and as citizens, they are concerned over the problem of nutrition. The difficulty that faces them arises from the fact that a flour sufficiently rich in wheat vitamins to make a worthwhile contribution to the solution of our thiamine deficiency is quite unacceptable to consumers. Vitamin B white flour is a compromise. To many consumers it is not satisfactory in color and baking qualities, while its thiamine content is but 60% of that of whole wheat, and even if every baker in the country used it exclusively for white bread, only about 20% of the total thiamine deficiency would thus be satisfied.

I am not a nutritionist, but as one who is not unaccustomed to weighing scientific evidence, and also as one who has had to deal for over 20 years with the criticisms of consumers with respect to the baking qualities and color of higher grade flours (no customer has ever complained of their lack of vitamins) I can see no hope at present of our being able to overcome the existing thiamine deficiency by means of educational efforts. For that reason only, I have favored the enrichment of white flour with synthetic thiamine. I do not remember having expressed any opinion as to the advisability of enriching Canadian flour with other vitamins and with mineral elements.

—BREAD IS THE STAFF OF LIFE—

A.A.C.C. SEEKS NEW MEMBERS

The Association of Cereal Chemists is conducting a campaign for new members in order to increase the scope of the organization's work, Betty Sullivan, president of the association, has announced.

"There are many more chemists working in the cereal field who would like to become members and who would contribute a great deal to our organization," she said. Each member has been asked to invite eligible nonmembers to join. The annual membership fee is $10, which includes a subscription to the association's journal, "Cereal Chemistry," as well as the other benefits of the association.

—BREAD IS THE STAFF OF LIFE—

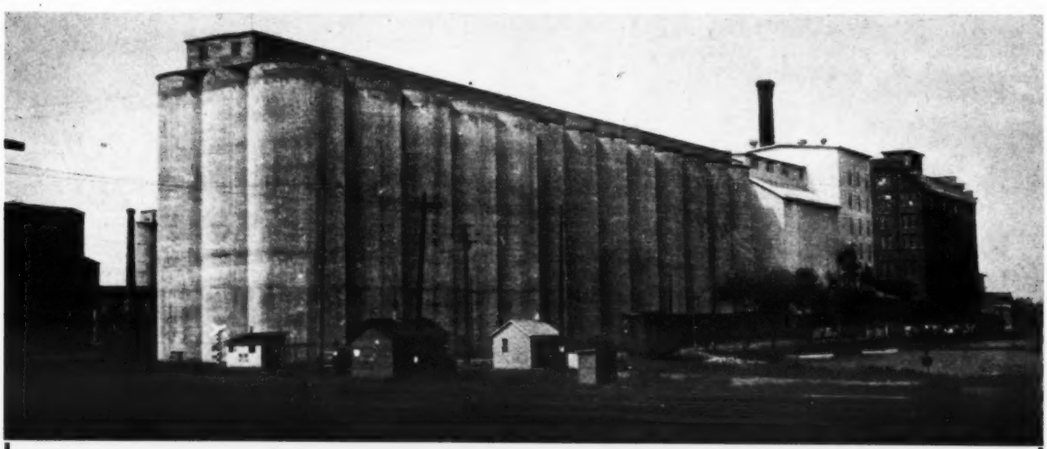
Grinding's Effect on Diastase

HERE'S a simple analogy that illustrates the meaning of "diastatic activity." Diastase might be considered as analogous to potential energy such, for example, as a given quantity of steam with a specified pressure per square inch. In a cylinder, between a rigid head and a movable piston, this steam may or may not be able to move the piston, depending upon the amount of resistance against which it would have to act. So also, diastase acts upon starch to convert it to sugars in accordance with the amount of resistance offered to its action. A large quantity of the diastatic enzyme may act with relative feebleness when starch is highly resistant, and vice versa.

The diastatic activity of a flour is measured by the amount of sugar it will produce in a given time under controlled conditions. It is independent of the quantity of sugar contained in the flour at the beginning of the test. The sugar produced is measured as maltose. Malt flours are often added to increase diastatic potentials of flours in which that property is too low.

It is interesting that starch cells which have been mechanically injured offer less resistance to the combined forces of the diastatic enzymes than do uninjured granules. Flours have within themselves, then, the makings of excessive enzymic activity—and this is not necessarily confined to the performance of the diastase.

Remembering that diastatic activity depends not merely upon the amount of diastase present but upon the resistance offered by starch to its power, it seems evident that the physical condition of flour starch may be an important factor. The method of milling greatly affects this physical condition. Illustrative of this is the fact that it has long been recognized that flour produced on experimental mills differs from commercially milled flour of the same wheat. There seems to be no doubt that the difference is primarily due to the physical condition of the starch. Authorities agree that injury done to starch granules by severe grinding is reflected in poorer baking qualities.



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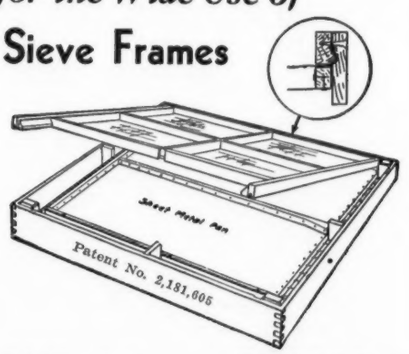

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Sieve Action Regulates Efficiency

By Louis H. Gibson

IN its operation, the common form of purifier requires that the middlings should entirely cover the sieve, in a thin, uniform sheet, so that air in passing through can take with it the lighter particles—the impurities. If the sieve is not covered at any one or more places, the air will come through such uncovered places, to the exclusion of others, as the air will come from the direction where the least resistance is offered. This covering of the sieve is important in any case, but more so where the action of the purifier is dependent upon the uniform passage of air through the sieve.

If the sieve becomes bare, the action of the air currents, as far as any benefit to the middlings is concerned, is greatly disturbed, and at the same time the value of the sieve action—which is not to be overestimated—is almost entirely lost. The light impurities which would otherwise pass over the sieve by floating along on top of the middlings, are allowed to pass through the cloth and go to the next machine as a cut-off, rather than over the tail as tailings. While the cut-off is of a lower grade than it should be, the quality of the stock at the head of the machine is correspondingly reduced.

It is well understood that a purifier should have enough to do, and yet not too much. It is vitally necessary that the sieve should be covered. On the other hand, if the machines should have too much to do, the middlings would not be clean, and there would be waste at the tail. This thing can be partially regulated by the proportion of coarse and fine cloth. The head and tail numbers are easy enough to determine, and the intermediate numbers may be readily supplied. The quantity of each requires judgment and experience and a knowledge of individual cases. Say we want to determine the head and tail numbers for the middlings which come through the Nos. 3 and 2 cloth. In the present instance it would be well to use the numbers at either extreme of those mentioned. This would mean 4 for the head number and 0 for the tail number. The amount of 4 to be used would depend largely upon the amount of middlings to be handled, and of the 0 only a very small portion in any case, because it is only put there to cover the contingency of the machine tailing over, when it has more than an ordinary amount of work to do. Perhaps No. 1 cloth would be better in many instances. The fact of the tail of the grader being clothed with 00 may look like a mistake, considering the fact that the coarsest middlings pass through a 000. This may be explained by saying that an aspirator with a heavy suction should be placed so as to take all stock going over the tail of the grader. From here it would go on to the coarse middlings purifiers.

An oversupply of stock in the sieve impedes the action of the suction, in that the air cannot pass through the volume of stock in a way to separate the impurities. At the same time there is stock going over the tail which does not belong there. The extreme of light and heavy feeds may be practically illustrated in a mill more than once in a day. It might be said that in "case of a light feed, raise the feed gates," but if there were no more middlings in the mill, this would do no good. In case of heavy feed, it will not do to lower the feed gate, as this is not getting rid of the accumulation.

In the foregoing, the clothing of a machine was mentioned as one consideration which would affect its capacity, and it was stated that the proportion of coarse or fine cloth could be increased or decreased according as it was intended to increase or decrease the capacity of the machine. Another way of effecting this same result, mention of which was omitted in its proper connection, is by changing the speed and throwing off the sieve. We will say that the machine has too much to do, that the middlings lay thick and heavy on the cloth, and for that reason tail over heavy and rich, and, as a consequence of the sieve being heavily loaded, the suction cannot do its work properly. All this can be changed by increasing the number of vibrations of the sieve. Making it move faster would take a large body of middlings over the sieve in a thin sheet. If the feed were

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too-light, a change in the motion of the sieve to make it run slower would cover the cloth; but this remedy is not practicable for ready adjustment, as few machines are so arranged that the speed of the sieve may be reduced without correspondingly diminishing the force of the air currents, which is not desirable.

Another, and by far the best way of regulating the capacity of a machine, is by having an eccentric with a double sleeve, so that the throw can be changed at will. This is sometimes called a double eccentric. It does not mean two eccentrics, but rather one eccentric with a double sleeve. If the stock lies too thick on the sieve and the machine appears to have too much to do, the desired change can be made by increasing the throw of the eccentric. This is done by moving the inner sleeve in such a way as to increase the throw as stated. This makes the stock travel faster on the sieve, and consequently in a thinner sheet. Where the machine has not enough to do—where the sieve is not covered—making the throw less will bring about the desired end. A change in the inclination of the hangers changes the speed of the stock on the sieve, but even on machines where this is a mechanical possibility, millers or purifier men are not inclined to do a thing which is so liable to entirely interrupt the regular movement of the stock, and any changes of the hangers are calculated to do this. The principle of their adjustment is that, where the resistance is greatest next the eccentric, the flow of stock will be more rapid, and *vice versa*.

As far as known, there is only one machine made with this double eccentric, and the millers who have used it have gained very little benefit from its being on the machine, as very little attention was paid to this matter of throw. In making some inquiries, the writer was led to believe that this form of eccentric was first used in milling operations on an oat separator. It may be noticed that with one of these machines the matter of throw or speed makes a great difference in its operation. A little change one way or the other makes a marked difference in the result.

The matter of a machine having just enough to do, neither too much nor too little, is of the greatest importance. No system of purification can be so perfect in arrangement but that its work can be made inferior by a disregard of this matter. It is difficult to emphasize the importance of this detail sufficiently. This may be said, that no purifier can be under the control of the miller, nor can be made to work up to its possibilities at all times, without means of adjusting the speed or throw of the shaker, or some other means of adjusting its capacity.

v v

EDITOR'S NOTE: Mr. Gibson, author of the book "Gradual Reduction Milling," from which this article is reproduced, was regarded as the foremost technical writer of his day. Although nearly 60 years have elapsed since THE NORTHWESTERN MILLER published his renowned volume and times and milling have changed considerably, present-day millers will find that many milling fundamentals which Mr. Gibson recognized and discussed are just as interesting and valuable today as they were in 1885.

War Production Board Asks:

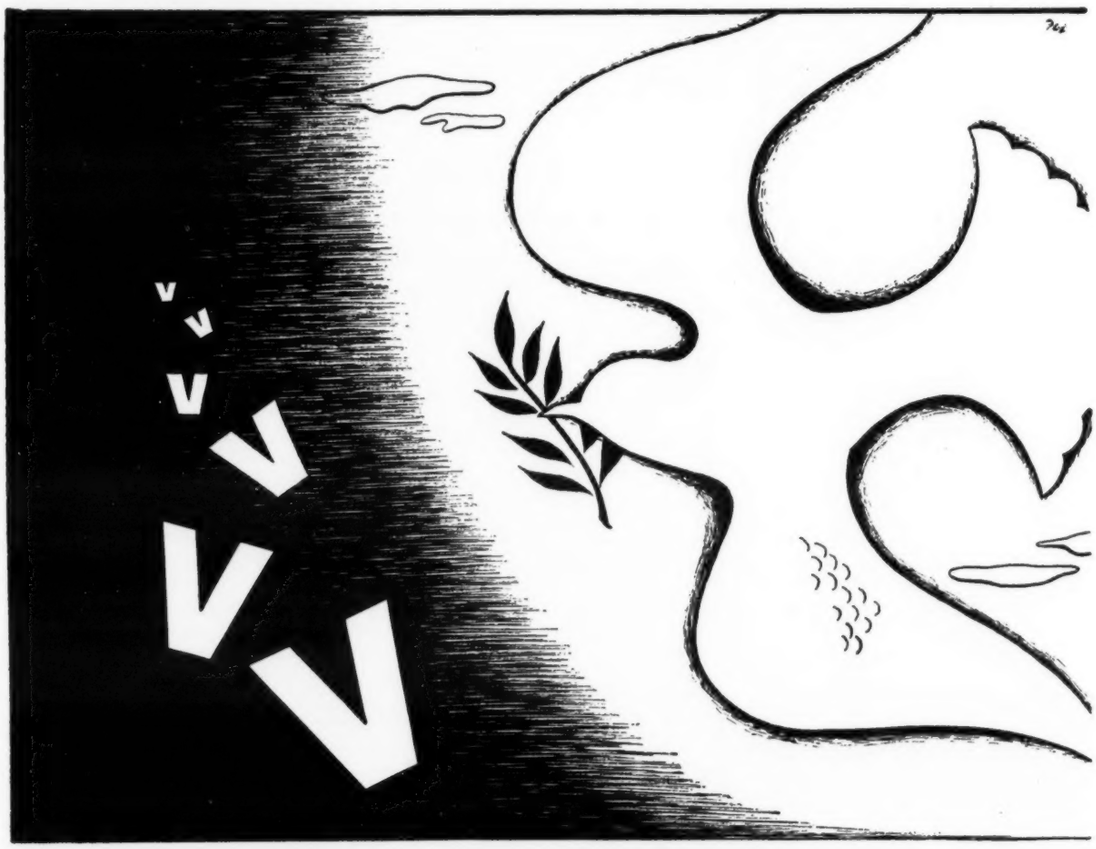
Give Your Mill a Shake-down; Get That Scrap into the Fight!

The average flour mill, regardless of its size, probably has in it some obsolete machinery or other material that the War Production Board classes as "dormant scrap." The recent coal labor dispute has served to make more critical this country's need for more scrap to keep the steel mills in operation.

Last year during the scrap collection campaign, most of the so-called "free" materials and equipment were collected and many mills got rid of what normally is regarded as scrap, when the junk piles were hauled off to the community collection centers. Not much thought was given to scrapping pieces of machinery that weren't on the junk pile.

Dormant scrap has been defined by the War Production board as "obsolete equipment, machinery, materials in

as inevitable as the coming of peace.



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stock, dies, molds, jigs, fixtures, etc., for which there is not any immediate future use in the war production effort because they are broken, worn out, irreparable, dismantled or in need of unavailable parts necessary to practical re-employment."

Using the War Production Board's "yardstick" as a measure of whether a piece of equipment is dormant certainly puts a lot of unused equipment and machinery into the fight.

Industry's scrap salvage must be stepped up so that by the use of scrap during a fuel shortage, the steel mill blast furnace operation may be bypassed if necessary. Scrap is not used in the blast furnace, but is fed into the open hearth furnace with pig iron. In order to by-pass the blast furnace, the mill must draw upon its stocks of "pig" and raise the percentage of scrap in the mixture so that the supply of "pig" will not be completely exhausted. In general practice, the manufacture of steel requires 50% scrap and 50% "pig" and in many cases the percentage has gone as high as 75% scrap and 25% pig.

Each company has been asked, by the War Production Board, to appoint a top salvage executive with full authority to make decisions and act for his company.

"One thing that seems to be most commonly lacking in executing a salvage program throughout a plant is the lack of initiative in acting on certain items and materials," the WPB announcement states. Centralizing the responsibility in one executive or with a small committee will promote more prompt action in salvage disposal, the WPB believes.

Some sources of scrap which should be observed closely are:

Unusable or obsolete equipment, including boilers, stokers, mills, superheaters, gasoline or diesel engines, cast bases, pumps, compressors, tanks, electric motors.

Copper and its alloys, brass and bronze, are most critical needs at this time. Some sources of these metals in the average mill are: Dead cable in ducts or conduit, unusable copper wire, idle and unusable transformers built prior to 1929, unusable buses, transfer buses, worn out bearings.

IT TAKES METAL TO FIGHT A WAR

The metal required per man in the armed forces in World War I was 94 pounds. In this war, it is 4,900 pounds. Thus we compare about 100 pounds per man with nearly 2½ tons per man. Mechanized divisions, bigger, better and vast numbers of planes, much greater firing power in guns, greater numbers of men in our armed forces and greater requirements for lend-lease all add up to require steel production by the United States in almost astronomical numbers of tons.

The Story of Lubrication

ALTHOUGH the known history of lubrication can be traced only 4,595 years, the practice of lubrication is an invention of Nature itself. The muscles and joints—even the skin—of animals were supplied with fats and oils to facilitate movement and to help prolong life.

The earliest record of man's using a lubricant to help him perform a mechanical task has been found in the Egyptian tombs of Tehuti-Heteo, who lived about 1650 B. C. There the oldest known illustration of the application of a lubricant, a painting by the artist Amena-Ankhn, shows a great stone statue being moved from a quarry to a distant temple by means of a sledge, pulled by slaves over wooden planks laid along the ground. A dark green oil is being poured by a slave on to the planks ahead of the sledge.

Almost certainly lubricants had been used for a considerable period before this painting, for it has been found that the Egyptians had available nearly every animal oil and fat and approximately 13 vegetable oils. Although these were used for food products and as the base for paints, records such as the above painting reveal that the value of lubricating bearing surfaces was recognized in the early civilization.

Almost 1,400 years later, Ctesibius designed an air compressor for pipe organs whose "sliders must be rubbed with oil so that they can be easily moved and slid back into place again." This lapse of 14 centuries between the early application of lubricants to bearing surfaces and the use of lubrication in more precise machinery is evidence both of the slow development of machinery and of the correspondingly slow development of suitable lubricants.

Actually, the science of lubrication as we know it today advanced very little during the first 4,500 years of its life, and then suddenly, within the last 90 years, it has been transformed into a highly specialized and vitally important adjunct of the mechanical engineering profession. This latter profession has virtually fostered the science of lubrication, for as new machines have been designed, as new demands have been made on both the length of life and efficiency of mechanical devices, new lubricants have been required which would enable the engineer to turn the products of his drawing board into durable and efficient expeditors of man's labor.

During the early days types of oils and lubricants available were limited, as was the scientific knowledge of their application and manufacture. The principal lubricants of that period consisted of animal and vegetable oils.

Probably the most effective lubricants for machinery were castor oil and whale oil, the former for heavy needs, and the latter for lighter machinery. Lard oil, rendered from the fat of hogs, was generally used as a belt and leather dressing and also as a cutting oil in machine shops. Linseed, cotton seed, olive, palm, cod and fish oils were also widely used, both in leather tanning, in founding, and as illuminants and in some machinery lubrication.

As late as Civil War times there still was prevalent a primitive but fairly effective means of lubricating large open bearings. Sections were cut out of pickled sides of pork with the hide and hair left on so that the tallow attached

to the hide could be tucked in and held in place around the open bearing. Beef and mutton tallow also were extensively used in the lubrication of large bearings, beef tallow being accepted for over half a century as the standard lubricant of steam cylinders of the early engines and pumps.

The application of the tallow was as crude as the lubricant itself. The groaning of the pistons in the cylinders was the signal for the admission of some heated, liquid tallow oil, which was poured into the "tallow cup" while the cup valve to the cylinder was closed; the top was then put on the cup, the valve opened, and a bath of oil admitted to the piston. Almost always too much oil for the mechanism to use at one time was applied. Gradually, however, the oil would be used up until the much abused machinery would groan again and then the cycle would be repeated.

Examination of the bearings of some of these early steam engines has shown that the heat in the steam cylinders broke down the animal or vegetable oils, freeing fatty acids which etched the metal surfaces. These acids, however, as they were subjected to pressure and heat solidified and filled up the etched pores in the metal surfaces, thus conveniently compensating in some part for their own deficiencies. They also offset some of the inaccuracies in the machining of metal parts.

In cases where the boiler water contained lime or other solutions, and where priming was used, the tallow formed a paste which was rolled into hard balls the size of marbles by the action of the pistons. These balls would fall to the bottom of the cylinder and sometimes interfere with the operation of the machinery. It was quite usual for servicemen, when they checked over steam cylinders of locomotives or vertical marine engines, to take out handfuls of these "marbles." Even when certain mineral oils were prepared in later years to take the place of tallow, a similar condition occurred because of the high wax content of the mineral base lubricants.

The accepted standard of excellence for lubrication of light machinery, for illumination and for the processing of leather, however, was whale oil. During the late 17th century and the entire 18th century, whaling became one of the major industries of New England. The operation of large fleets of whaling vessels out of "Down-Eastern" ports by intrepid men of the sea gave rise to many of the best loved and heartiest stories of early American literature. The pursuit of the elusive Moby Dick in the storm-tossed reaches of the North Atlantic constituted a romantic adjunct of industrial enterprise that has fascinated generations of Americans who may have had no other interest in the early industrial history of this country.

In spite of the difficulty of obtaining it and its consequent high cost, however, the oil of the sperm whale was of such unquestioned superiority over possible substitutes that it was probably the most generally used lubricant for the light machinery of that day.

The principal disadvantage of whale oil to early industry was its lamentable tendency to turn rancid. Although just as good a lubricant in the rancid state, this trait placed a certain limit upon the desirability of working in factories which used whale oil. It is said that one of the reasons that early textile mills did not need to put up signs to state the name and activity of the company, was that whale oil was used almost exclusively as the lubricant for the spinning machinery. In fact, it has been claimed that anyone who worked in a textile mill, especially during the summer months, became a walking advertisement for that company.

Textile mills were the first manufacturing plants to use central power, and, consequently, that industry was one of the first to operate light power machinery. Some of the difficulties experienced by early industry in connection with its lubrication problems are, therefore, typified by those of the textile mills. Whale oil vaporized, gradually covered mill windows with a brown, varnish-like matter which also clung to the bearings and spindles and other parts of the mill machinery. It was this gumming tendency, not only on the part of whale oil but on the part of most other early lubricants, which necessitated frequent cleaning and servicing of machinery.

However, as we look back upon lubricants of those days and tend to smile a little condescendingly at the comparison between today's oils and greases and those of the 18th and 19th centuries, we must remember that the design and manufacture of machinery did not demand anything better of the lubrication industry.

* *

EDITOR'S NOTE.—**The foregoing article comprises excerpts from a handsome illustrated booklet recently issued by Swan-Finch Oil Corp., R. C. A. Building, W., New York City and 201 North Wells Street, Chicago, to commemorate that company's 90 years of industrial pioneering in the field of lubricants. Copies of the booklet will be supplied to applicants writing on firm letterheads.**

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1. EQUIPMENT FOR A FAST, THOROUGH FUMIGATION JOB with Liquid HCN is contained in these two compact trailers. You can use this powerful, economical fumigant *with* "clean-up" in standard doses of 8 oz. per 1000 cu. feet or *without* "clean-up" in doses only about 50% greater.

2. WHERE INFESTATION IS WORST, such as in flour siftings at the bottom of an elevator boot, extra rubber hose is added to the manifold of the temporary hose or permanent piping system and Liquid HCN applied directly to the "trouble area." It kills insects in every stage of their life cycles, insuring complete control.

3. APPROXIMATELY 200 POUNDS OF PRESSURE are sent through the cylinders of Liquid HCN by this air compressor. Liquid HCN fumigation reaches all possible infestation areas, is adaptable to all conditions and all types of mills and warehouses. And it is economical and convenient to use.

4. SIGNS OF SABOTAGE are these beetle tracks in a bin where flour is ground. To assure complete freedom from such costly infestation of vital foodstuffs, have your mills and warehouses fumigated *regularly* with Liquid HCN by an Industrial Fumigation Engineer. He will give you an economical and efficient job.

Nothing has been found to equal Liquid HCN for simplicity and effectiveness in fumigation. By means of an inexpensive piping or a temporary hose system, every piece of milling equipment is fumigated directly at one time. All stages of insect life cycles are controlled—in less than 24 hours. Liquid HCN is the most economical method of insect control. It is harmless to products and equipment, safe, rapid and adaptable. It affords maximum kill at minimum cost.

To assure the most satisfactory fumigating results, call in an Industrial Fumigation Engineer. We will be glad to recommend a competent organization in your vicinity without obligation.

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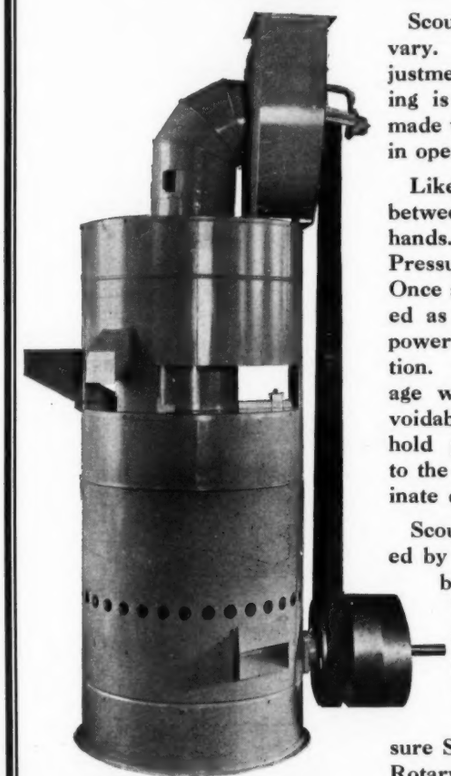

Scouring requirements vary. In this machine adjustment to control scouring is quickly and easily made while the machine is in operation.

Like rubbing grain clean between the palms of your hands. That's the way the Pressure Scourer works. Once scouring was accepted as a necessarily large power consuming operation. Once wheat breakage was considered unavoidable. Haaky Scourers hold power consumption to the minimum and eliminate damage to the grain.

Scouring is not completed by the polishing alone, but by aspiration too! The Haaky patented methods assure strong, accurate and uniform aspiration.

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THROUGHS & OVERS

Storing Wheat Germ

The National Research Laboratories, Ottawa, Ont., report that wheat germ keeps better at a moisture content of 8% and at low temperatures. In its study of development of rancidity in commercial wheat germ, the laboratory also found that the storage life could be lengthened by compressing the germ into blocks or packing it in nitrogen gas. Rancidity does not affect the thiamine content of the germ, they found.

Allred to Jennison Company

William Allred, for many years head miller with the Amber Milling Co., Rush City, Minn., now is with the W. J. Jennison Co. at Appleton, Minn. After Mr. Allred left the Amber organization he purchased a small mill at Holdingford, Minn. His son Anderson is operating the Allred mill.

Army Is Interested

The army quartermaster corps is watching experiments with bread made from flour ground through a meat and vegetable cutting machine. Officials of the WPB saw in the machine a possible use by the army to meet emergency bread needs in remote places of battle. Bread baked from the flour needed no addition of shortening, as the oil of the wheat germ was sufficient.

As in the Good Old Days

Here is a quick and easy way to obtain white flour from unsifted meal, as reported in the Natal (South Africa) *Daily News:* Obtain an old silk stocking, cut off the foot and machine across the opening thus made. Leave the top end of the stocking open, pour the flour in here—about a cupful at a time, and grasping each end of the stocking, shake over a basin. In next to no time the fine white flour has sifted through. Do not throw away the coarse meal that remains in the stocking, but cook it in with porridge—it is delicious.

Bread Contains Vital Acid

According to research findings reported by the American Institute of Baking, bread is a good source of threonine, the amino acid most recently proven essential to life and growth and one of the 10 essential amino acids of the body-building proteins. There were no significant differences in threonine content between white and whole wheat breads.

Wheat Shortage in Persia

According to a correspondent of a leading London daily paper, Persia is faced with a wheat shortage, which is believed to be partly due to hoarding, and the British army has gone to the rescue by supplying 1,500 tons of flour from its stocks. Measures are being taken by the British and United States governments to remedy the situation.

96% *Flour in South Africa*

Like the meat packer who gets "everything but the squeal" from the pigs he slaughters, South African millers now are milling to a 96% extraction, "the balance of the products being bran," the secretary of the South African Co-operative says in a recent letter received by THE NORTHWESTERN MILLER. "In normal times the extraction averages 75%," he adds. Margins on which millers work are fixed annually by the Wheat Industry Control Board of South Africa, the correspondent explains. In his tabulation of the margins allowed, it is interesting to note that the Board allows the miller more for bad debt losses than for bagging flour. Direct milling expenses account for about one-sixth of the total margin.

New Field Baking Unit

A new field baking unit which can be erected and put in operation within 30 minutes and which has a capacity of a day's bread for 4,000 troops, was recently put into army service. It has two ovens, a motor-driven mixer and can be carried on any standard army truck. Only one tool is necessary to assemble it in the field. Coal, gasoline or wood may be used for fuel.

"Dad" Smith Home Again

Louis E. (Dad) Smith, Minneapolis, former superintendent for the International Milling Co., but now retired, is home again, following hospitalization for a liver complaint. Mr. Smith spent the winter in California, as usual, but took sick and was in a hospital out there also for some time.

Night Baking on Subs

Night time is baking time on submarines. When they rest or cruise on the surface while on patrol, bread, pies and cakes are baked and other foods cooked. There is no baking or cooking done while the vessels are submerged.

Earl Fallin in New Job

Earl Fallin, who recently resigned as chief chemist of MFA Milling Co., Springfield, Mo., is now chief chemist for South Texas Feed Co., Houston, Texas.

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Top Quality
Malted Wheat Flour

It is essential that your hard wheat flours bake consistently to your established standards. But improper diastatic treatment can spoil your most careful wheat selection and milling methods.

DIABLEND malted wheat flour assures you of uniform quality and quantity of diastatic action. Selected wheat is malted in our own malt plant under automatically controlled atmospheric conditions. DIABLEND is manufactured to a standard level of maltose, milled so it is free flowing for accurate feeding.

We will provide samples for experimental work in your own laboratory, or you may send to us samples of your untreated flours for analysis. Maltose or gassing power analyses in our laboratory are free to DIABLEND users. Ask for a sample and quotation of DIABLEND today.

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Use Columbia Flour Blend Sodium Bicarbonate—and you're sure of good self-rising flours. Good from the production angle because of its free-flowing properties and freedom from caking. Good from the consumer's angle because this blend of U. S. P. Sodium Bicarbonate is exceptionally pure.

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OFRRO FAVORS LONG EXTRACTION FLOURS FOR EUROPEAN RELIEF

American Mills Expected to Get First Call on Packaged Cereals and Other Processed Foods for Shipment— Unmilled Grain From Canada

WASHINGTON, D. C.—(Special)—Flour mills of America may expect to participate liberally in the program of supplying cereal products to all countries liberated from the yoke of Nazism and Fascism by the United Nations, but white flour will be the least of the prospective shipments abroad. Instead unmilled grains and long extraction flours seem to officials of the Office of Foreign Relief and Rehabilitation Operations to be the types of cereals which will have the first call.

Division heads of the relief organization now functioning under the directorship of Former Governor Herbert Lehman told THE NORTHWESTERN MILLER that they are still in the planning or study stage of prospective needs of the war-ridden countries once they are free; with North Africa and Sicily the only regions where actual operations have been put into effect thus far.

CONFERENCE TO DRAFT PROGRAM

Nor will the precise nature of America's part in the relief job be definitely outlined until the proposed United Nations food conference, now under consideration, actually convenes and drafts the program.

This conference, officials disclosed, will be participated in by the United States, United Kingdom, Russia and China, but just what other nations will elect to share the burden of supplying food and rehabilitation relief remains unknown at this time.

Anticipatory or preliminary planning on the food side of the problem is being done at this time by members of Governor Lehman's staff in the division of programs and requirements which includes a food branch with John Perry as acting chief and Dr. Helen Mitchell as chief nutrition consultant.

FAVORS LONG EXTRACTION FLOUR

Apparently Dr. Mitchell, who formerly was active in Paul McNutt's now defunct Office of Defense Health and Welfare Service, is the chief advisor on what type of food Europeans will need after the dictator reign has exploded. Dr. Mitchell was questioned about the accuracy of Patrick Murphy Malin's observations in an address made at the convention of the cereal chemists association in St. Louis. Mr. Malin said that unmilled grain and long extraction flour will be required in the anticipated relief areas.

"It is not the function of OFRRO to dictate to any nation what its people shall eat," Dr. Mitchell asserted. She added that dark breads have been traditionally consumed by the peoples of the European continent.

John Perry, acting chief of the food branch, took a somewhat different slant by observing "Maybe the Europeans had to eat black bread because they couldn't get any other kind."

When it was pointed out to Dr. Mitchell that except for one lot of long extraction flour shipped to Russia within the past year, all lend-lease shipments had been white flour and in the last six months the bulk of overseas shipments had been enriched flour, she remarked:

"We may send some enriched flour for relief purposes, but it is a luxury product abroad."

Canadian wheat will probably have the first call on filling the unmilled grain needs in relief areas with American mills participating more generously in the shipment of packaged cereals and other processed goods, it was officially indicated.

OFRRO officials stressed, however, that it was too early to make any accurate estimate of what calls American food producers would be expected to fill, pending the United Nations food conference, which is expected to be held this fall.

——BREAD IS THE STAFF OF LIFE——

RUST-RESISTANT OATS USED IN INCREASING AMOUNTS

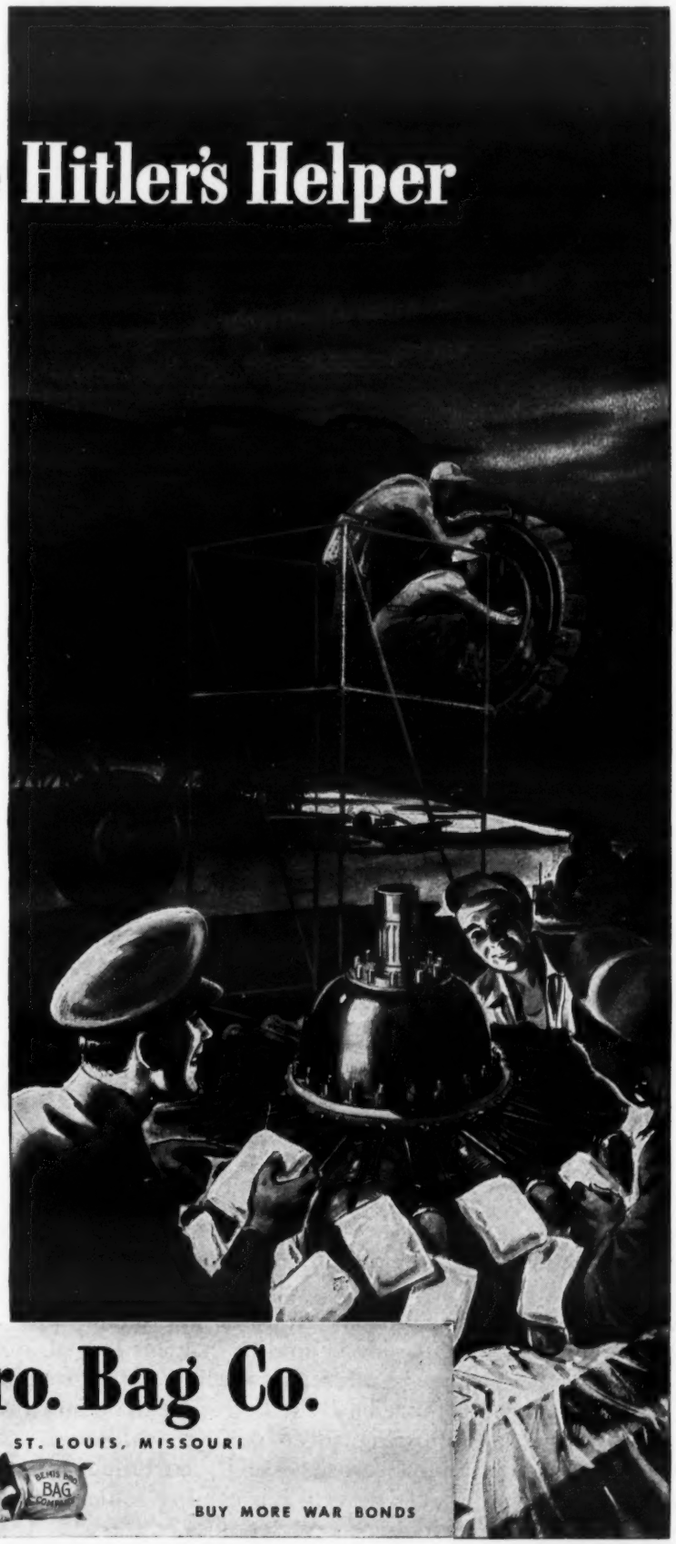
WASHINGTON, D. C.—Success with recently developed disease-resistant varieties of oats in some of the important oat areas, says the U. S. Department of Agriculture, comes at a time when the heavier yields count in the United Nations' food program. Once highly destructive stem and crown (leaf) rusts and some other diseases have been made relatively harmless where the right varieties are grown. These varieties average approximately 10% better than the old sorts, and in a bad rust year have yielded 20 to 30 bus more than the old ones.

This year in Iowa, the biggest oat growing state, 75% of the acreage was sown to resistant varieties; in Wisconsin, 50%, and in Illinois about 30%. They were also widely distributed in Minnesota, the Dakotas and Nebraska. Altogether about 7,000,000 acres are now growing the double resistant varieties in this area where the diseases have been most troublesome—nearly one fifth of the country's entire oat acreage.

Plant breeders of the Bureau of Plant Industry, Soils and Agricultural Engineering co-operating with the state agricultural experiment stations have developed these new varieties. Following the production of strains resistant to stem rust and their wide distribution, it was found that much damage was being done by crown or leaf rust which probably had been masked before by the more conspicuous stem rust and by what was thought to be heat damage. Now varieties with combination resistance hold off damage by several diseases.

Of the new varieties now promising in the principal oat states, Boone, Control, Marion and Tama do well in Iowa. Vicland is very popular in Wisconsin. Vicland and Tama are recommended in southern Minnesota; Vikota in South Dakota; and Marion, Vicland and Boone in Illinois. These disease-resistant varieties are also being grown in Indiana and other corn belt states.

Bags Capture Hitler's Helper



From the cloud-smothered Arctic to the seething tropics, Hitler's helper, moisture, seeks to corrode and damage war machines and equipment from the Arsenal of Democracy. But the ingenuity that created American industry has found a way to capture this saboteur... in a bag.

In packing airplane motors for overseas, for example, small cotton bags of silica gel are tied on the motor. Then the whole assembly is sealed in a moisture-vapor proof covering and placed in its shipping case. The bags of silica gel draw dampness from air enclosed with the motor while the covering prevents more moisture from entering. The motor reaches the front rust-free and ready for battle.

Our contribution to this wartime packaging triumph, which also saves thousands of man hours at both factory and front, is the little bag that holds the silica gel. And while it is one of the smallest bags ever turned out by our mass-production facilities, we are proud of the contribution it is making to victory.

This and other war work has not interrupted our service to the industries we normally serve. We are supplying, for example, ever increasing quantities of the bags millers need in their all-out effort to provide our armed forces, civilians, and Lend-Lease with flour—one of the most important food products.

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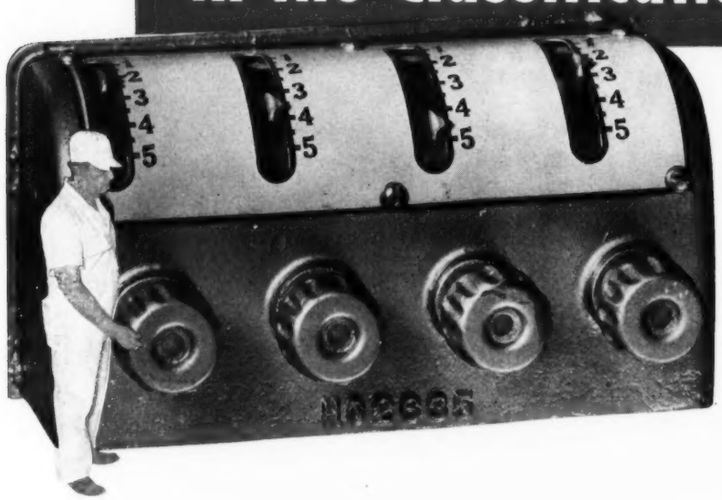
BUY MORE WAR BONDS

Millers Are Finding the PUROGRADER PROVIDES NEW ACCURACY in the Classification of Stock!



Classification of middlings stock with the Purograder is amazingly accurate and thorough. Large middlings free of loose bran are sent to the coarse sizings roll. Smaller middlings go directly to the fine sizings roll. The bran or beeswing can usually be sent directly to feed. Users report that this accuracy of separation results in longer extraction of high quality patent, also better color.

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In mills fortunate enough to secure installation, the Purograder is establishing an entirely new standard of results in the classification and purification of middlings. Strong air currents have been eliminated. The entire purifying and classifying job is accomplished on a basis of weight, size and shape differences. The unique way in which air is applied reduces loss of moisture in the stock. This keeps middlings mellow, bran tough, with the result that bran is more easily flaked and can be more readily scalped off in the following sifter section. Although installations of new units have been necessarily curtailed, millers are invited to write for free, descriptive catalog folder which will describe operating principles and features.

New Equipment Available to Meet Essential Needs

The War Production Board is giving favorable consideration to applications for new grain cleaning machinery where such machines are essential to the vital food program. If in need of new equipment, write Hart-Carter for information about priorities and delivery. A limited number of new machines is available. For essential, priority-rated equipment—look to Hart-Carter.

HART-CARTER COMPANY

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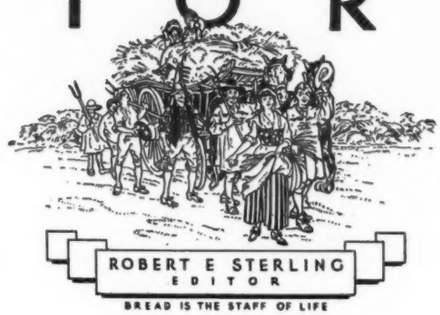
EDITORIAL



SAFEGUARD THE WHEAT NOW

CHARACTERISTICALLY solid reasoning is evidenced in the following extract from a recent study of the domestic wheat situation by Food Research Institute:

"There is only one thoroughly satisfactory solution to this dilemma—a pooling of wheat resources by the United States and Canada. The United States would not have to carry wheat stocks of more than about 200,000,000 bus on July 1, 1944, if our government could count on drawing adequate supplies of Canadian wheat to meet future emergency needs in this country and to fill the commitments of the United States government for relief and lend-lease shipments abroad. The chief difficulty that seems to stand in the way of this solution is the apparent shortage of transport available for carrying grain from Canada to the United States. The seriousness of this shortage should be thoroughly investigated by American officials, and steps taken to overcome it in 1944 if not in 1943. If it discovered that the United States cannot rely on transport of Canadian grain to this country to meet unusual domestic needs, there still remains the possibility that, in an emergency, Canada, Argentina and Australia could be made the sources of wheat sent out to fill the foreign lend-lease and relief commitments of the United States. But until these various possibilities are explored, it would seem unwise for the WFA to permit diversion of extensive quantities of government wheat to feed or allow the present rate of absorption of wheat for alcohol production to continue. It is entirely conceivable (though on general principles unlikely) that before the present war ends the United States may harvest a wheat crop as small as 550,000,000 bus and at the same time face domestic needs for 800,000,000 bus or more."

Here, without the necessity of precise statistics, is a statement of our present wheat position not susceptible of juggling in the interest of any current plausibility of the kind which recently has determined the course of too many of our food policies. *If* we can pool our wheat with Canada and *if* in case of emergency we can turn over to that country and to Argentina and Australia our world food responsibilities and commitments for this year and next, all may be well, even though our own reserve at next crop year's end should fall to as little as 200,000,000 bus; providing further than in some early future year our own harvest does not fall to 550,000,000 bus.

Yet to this conditioned statement we must add at least two more *ifs*. One of these, the matter of transportation across our northern border, is touched upon in the institute statement, but it does not mention the supplementary *if* of processing the wheat and distributing its products after it has crossed the border. That in itself would be a most important *if* when it is considered how finely adjusted to requirements are these well established movements and processes in our present bread supply.

The other, and fully as important, *if* has to do with the several varieties of wheat and the widely varying use of their products. Just now the country is witnessing impressive evidence of this in the unprecedented price premiums being paid for soft red winter wheat, or for any type of wheat which may reasonably be substituted for it, not because of any total shortage of wheat but because of the insufficiency of this particular type of wheat for its specific uses. No matter though the country's bins be filled to bursting with wheat, if Nature and economic mismanagement at any time combine to create shortages in needed types of wheat, no amount of international pooling would prevent our whole bread program from being seriously upset.

We just now are witnessing the effects of mismanagement of *types* of animal feeds upon our meats, fats and dairy program. Precisely these same effects might result from our regarding all wheat as wheat and thus reducing our reserves to the border line of scarcity, simply because there is plenty of some kind of bread material in Canada or some other where in the world. It is comforting to know that, apart from a continent-wide disaster to the wheatfields, we are not likely to be hungry from actual lack of bread. Yet, to the extent that bread is to be the backlog of our nutritional assurance, it is essential that we continue to make available all of the bread foods to which people are accustomed.

Regardless of supplies elsewhere in the world, the time to protect our own wheat supplies is now.

——BREAD IS THE STAFF OF LIFE——

FREIGHT RATE JUGGLING UNTIMELY

AN unwelcome by-product of the controversy over the relative values of gasoline rationing coupons in the East and in other sections of the country is the injection into the discussion of the fairness of freight rates now existing in the East, South and Middle West. For the most part the disturbance originates with a small group of governors of states; but in considerable part it is receiving support from the long-time belief in southern states that they are generally discriminated against in railway freight charges. The incipient rebellion, in some sense mere reprisal, recently has taken the form of a threat to ask Congress for laws specifying fixed rates on major commodities.

We can imagine no proposal more untimely than this. Generally speaking, no department of government has been more successful in carrying on with its job than has the semi-independent Interstate Commerce Commission. Largely free from political influence and having gained through many years of fair and tolerant administration the respect of both carriers and users of transportation, it has served the public interest well and wisely. It has been particularly successful in giving to rates a degree of elasticity that enables carriers to meet changes in situations created by variations in crop and other natural conditions which so frequently disturb the routine of movements and markets. It has at times been tough on the railroads, but its toughness has been to a considerable degree balanced by intelligent tolerance.

To change all of this, especially in time of war, with the railroads accomplishing a veritably superhuman task in moving a wholly unprecedented load for both military and civilian needs, would be to endanger one of the most essential services required by conduct of the war. Furthermore, at the very time when nearly all else in control of government—apart, we trust, from the military effort itself—is in hopeless political and economic confusion, it would be little short of madness to throw the present orderly freight rate structure into the Washington maelstrom.

——BREAD IS THE STAFF OF LIFE——

LOST OPPORTUNITY

BY way of seeing what sort of horse trade we could stir up, we asked a man how about us trading him a carload of white kafir or milo maize for an equal weight carload of standard bakery flour, even Stephen, instant acceptance. He wiggled his ears a little and said he would have to think it over, whereupon we withdraw the offer.

Happened that on that day kafir was selling at approximately 10c bbl higher than the current price on round-lot standard bakery flour, so that our friend missed a fair trading profit by not snapping us up like *that*.

AN ECONOMIC INVENTOR PASSES

WE feel a sense of impending loss in the requested retirement of Milo Randolph Perkins as director of the Board of Economic Warfare. Milo—he appears to have abandoned his classical middle name since becoming official—was a sort of allied tradesman of the bread industries in earlier days, first as a Texas salesman for one of the big bag companies and later as a bag manufacturer on his own account at Houston, Texas. Of course, the direct impact of that loss has faded with the years that have passed since 1934, when Milo made the acquaintance of government by writing a sympathetic letter to Henry Wallace, then Secretary of Agriculture, soliciting a job and landing it.

In the intervening years, Milo, always under the Wallace patronage, traveled fast and far. Through normal bureaucratic procedure he occupied various niches in the Department of Agriculture with apparently steadily growing favor. It was not, however, until the pressure of "millions of hungry people marching through avenues of plenty" became politically significant that Milo gained full recognition of his economic inventiveness. He was, according to all reliable account, the sole inspiration and deviser of the food stamp plan, the well remembered but now happily discarded scheme by which surplus farm products were disposed of and the poor fed without cost to anyone.

Of all the new deal devices by which the hungry were fed and the doleful made happy, the food stamp plan was most nearly criticism proof. Nothing, indeed, could be simpler than for the government to give free food tickets to all of the WPAs, all the beneficiaries of public aid, all of the boys and girls who could get attested by their precinct captains, all who did not, in a word, bear the taint of capitalism. Then, when these golden tickets were made tender for the burdensome surpluses which were wrecking agriculture, the magic circle appeared to be so complete that the imagination of press and public was literally fired with faith that the theory of something-for-nothing had at last been made practical and workable. It so fully activated the new deal ideal that the simple fact that it meant the people's treasury was paying half the living costs of those who could "qualify" was simply lost sight of.

Thus it was that Mr. Perkins, in earlier years ardent and vocally active disciple of the theosophist faith and of its associated Church of St. Raphael the Ark Angel of the Liberal Catholic Church of the United States, and living, it is alleged, in a home declared to be tax free because of its devotional character, became as if overnight an equally ardent and trusted handgentleman of the New Deal. It has been suggested that Mr. Perkins' experiences in mysticism may have had something to do with the firm favor of Secretary Wallace, with his own solid faith in the economic idealism of Joseph after he had abandoned his multi-colored coat and become a somewhat tricky servant of Pharaoh.

Whatever the tie, Mr. Perkins profitably followed in the footsteps of his patron, so that when the Vice President became chief of the Board of Economic Warfare, Milo stepped into the job of its director and thus graduated from the near great to the great in truth and in fact. Came, in good time, the dawn, and the spanking of Jesse Jones and Hy Wallace, with Mr. Jones left smiling like a well-fed kitten, Mr. Wallace out making be-good-and-you'll-be-happy speeches around the political circuit, and Mr. Perkins awaiting the turn of events. It seems probable that Mr. Wallace will take care of Milo. Somebody in the administration surely will, for boys who can think up schemes to give away public funds with the hearty approval of one and all do not grow on every political tree. He might be a good man for the Treasury or even, perhaps, for the OPA,—anything, indeed, that Jesse Jones has nothing to do with.

Canadian ★ ★

CONDUCTED BY A. H. BAILEY
Manager Canadian Branch
Lumsden Building Toronto 2, Ontario
Cable Address, "Palmking"

IN JUSTICE TO CANADIAN MILLS

TORONTO, ONT.—As was to be expected, the milling industry of Canada has taken exception to the statement made in House of Commons at Ottawa by the Minister of Agriculture on July 19 in which he gave an inquiring member particulars of the various milling companies concerned in the distribution of freight assistance monies paid out by the government in the course of its efforts to increase supplies of cattle and pig feed by shipment from western provinces. As given to the house this statement created an impression that the mills which received such monies from the government were themselves the beneficiaries, or partly so. Mr. Gardiner did not mean to leave that impression but such was the effect of his statement as presented to the house.

The fact is that all of this money had been previously paid to distributing agents in eastern provinces, mostly in Ontario. It took the form of allowances in cash, deducted from invoices, at time of payment to the mills making such shipments. As a consequence the mills were out the amount for the several weeks which invariably elapsed before they were reimbursed by the government. They were also out the amount of their costs for administration of this distribution on behalf of the government plus the interest on all such monies. None of their costs or of the interest involved will ever come back to them. Accordingly, it would have been only fair that in making a statement to the House of Commons the whole picture should have been disclosed and individual mills as well as the industry itself freed from the implication that public money was finding its way into the pockets of flour millers through the freight assistance operations.

The House of Commons is no longer sitting so the necessary correction cannot be made from that source, but a public statement in the press and by radio should be made. The milling industry of Canada is doing a good war job and has sacrificed much of its legitimate and never too generous earnings in order to help the government in this and other ways. Fair play demands that it should not be put in wrong with the public by ill-considered statements of this kind. A. H. B.

More Liberal Use of Canadian Wheat Reduces Baking Problem

LONDON, ENG.—As reported a few weeks ago, a larger proportion of Manitoba wheat is being used by the British port mills in the national flour grist, owing to diminishing supplies of English grown wheat. In an article in Milling, of Liverpool, G. Horace Ward, of the Anysome Laboratories, Grange-over-Sands, comments on this increase in the use of Manitoba wheat and the resulting marked improvement in general strength of national flour. He says that for the past several months, while grists have contained about 40% of English wheat, and especially since the admixture of barley, oats or rye became compulsory last February, it has become increasingly difficult to maintain adequate general strength in bakers' bread flours.

The chief deficiency has been in extensibility, which in many cases has been so low as to render it extremely difficult to obtain crumb of fine texture in the bread. As low general strength has frequently been accompanied by undesirably high gas production, bakers have been compelled to reduce fermentation tolerance in the flour.

Now, however, the proportion of English wheat has been reduced to about 20% and it is allowable to use up to 70% of Manitoba. This, Mr. Ward maintains, should mean a considerable improvement in the baking quality of the flour, despite the fact that extensibility is rather low in some Manitobas which have been in store for a long time. He goes on to say that some of the Manitobas, especially the No. 2 grade, have had rather high gassing properties, so there is a possibility of high gas production being maintained in some of the flours for some time to come. The improved gluten quality, however, will mean that the doughs will be able to withstand the vigorous gassing more successfully and fermentation tolerance, therefore, will be better than it has been for several months past.

The milling grist must still contain an admixture of 10% barley and/or oats or rye, but the proportion of white flour (Canadian) which may be added has been increased from 7½ to 10%. This Canadian white flour has to be fed into the mill stream in England and Wales, but in Scotlalnd 12½% is still allocated through the flour importers to the baking trade.

It appears that the very genuine grievance which the bakers of England and Wales have persistently aired since diluents were added to the national grist, namely, that they could get no information from the millers or the authorities as to the nature of the flour supplied to them, has been partially removed. It is understood that arrangements are being made to introduce a system of labeling flour bags with a tag showing the week in which the flour was milled, while notices will be issued in the national and trade press of any marked changes that are made in the grist.

——BREAD IS THE STAFF OF LIFE——

TO STIMULATE FLAX GROWING

WINNIPEG, MAN.—In an attempt to stimulate production of flax in Canada, the Canadian and British governments have arranged an increase of 10c lb on linen flax, the Canadian Fiber Flax Growers Association was informed at its annual meeting held at Ottawa last week. This increase will apply to the 1943 crop. In addition, it was announced the Dominion government has agreed to pay a 5c lb subsidy for tow due to a decrease in production. An advisory committee of growers has been appointed by the Dominion government to co-operate with the association.

——BREAD IS THE STAFF OF LIFE——

SUPPLY OF WINTER WHEAT ADEQUATE FOR MILL NEEDS

TORONTO, ONT.—The winter wheat crop of Ontario for this year will be smaller than in 1942. Growing conditions have not been favorable. Harvesting is now in progress and reports as to the quantity and quality are none too good. The yield per acre will be less than normal. Nevertheless, there will be plenty of wheat to meet the requirements of winter wheat flour mills. They never grind all the crop or even the bulk of it. The market for this kind of flour is not large though factories and pastry bakers depend upon it for their particular trades.

Production of winter wheat flour in Ontario is always a matter of price. If the flour is cheaper than that from hard springs demand improves accordingly, but that has not been the case in recent years. For instance, the British West Indian market uses quite a lot of soft winters when prices are right, but low grades from western wheat are substituted if they are the cheaper.

During this crop year (1942-43) cheaper western grain has been freely blended with soft winters to meet the price situation in West Indian Island and to some extent home markets. Car lots of old crop winters have lately been sold at around $1.10 bu to country mills which is approximately the ceiling and more than the market will freely pay.

——BREAD IS THE STAFF OF LIFE——

JULY DRAWBACK PRICES SET

WINNIPEG, MAN. — For the purpose of establishing the amount of drawback to be paid on deliveries of flour and wheat products during July, the Canadian Wheat Board has announced that the average price established for No. 1 northern at Fort William-Port Arthur is $1.09¼ bu, and for No. 1 C.W. amber durum $1.14.

——BREAD IS THE STAFF OF LIFE——

COST OF LIVING INDEX UP

WINNIPEG, MAN.—The Dominion Bureau of Statistics reports that the cost of living index advanced from 118.5 points on June 1 to 118.8 points on July 2. Foods continued to be mainly responsible. The food index rose from 130.9 in June to 131.8 for July. Total increase in the food index since February has amounted to 5.1 points.

NORTH AMERICAN DURUM MAY BE NEEDED IN ITALY

WINNIPEG, MAN.—Developments from overseas during the past week having a direct bearing upon the grain trade have been the confirmation of a much reduced wheat acreage in Australia this season and the growing probability that substantial quantities of North American durum wheat may be needed for Italian areas, states a review by James Richardson & Sons.

The Australian report, placing the planned acreage at 8,317,000, was about in line with the average of recent reports.

Officials here, the report continues, are apparently trying to anticipate Italian needs of wheat and other foods, and if the German pattern of destruction is carried out, these requirements may be large.

——BREAD IS THE STAFF OF LIFE——

HARVEY M. STREIGHT RESIGNS

VANCOUVER, B. C.—One of the best known milling operators in the West, Harvey M. Streight, has resigned as general manager of the British Columbia operations of the Brackman-Ker Milling Co., Ltd., at New Westminster, a position which he has filled since 1930.

Mr. Streight, who has been in ill health for some time, will not sever his connection with the firm, however, but will retain his office as vice president and a member of the board of directors. His successor will be D. J. Grant, former manager of Western Canada Flour Mills Co., Ltd., at Gooderich, Ont.

In 1900 Mr. Streight joined the Brackman-Ker company as a clerk in the New Westminster office and was named manager in 1915. From 1926 to 1928 he was superintendent of the company's coast branches and later assistant to the general manager. During his connection with the firm he was prominent in civic work, serving as president of the New Westminster Board of Trade and also the Royal Agricultural and Industrial Society.

——BREAD IS THE STAFF OF LIFE——

SEARLE COMPANY ESTIMATES WHEAT AT 275,723,000 BUS

WINNIPEG, MAN.—Western Canada's 1943 wheat crop is expected to total 275,723,000 bus, according to a survey by the Searle Grain Co., Ltd. It is estimated that the yield will average 16.5 bus per acre. The total compares with 565,000,000 bus produced in 1942 from approximately 21,000,000 acres, or 4,000,000 acres larger than the seeded acreage to wheat in the prairie provinces this year.

The company forecasts an oat crop for the prairies of just under 400,000,000 bus; barley, 220,715,000 bus; rye 7,152,000, and flaxseed 20,258,000.

The report, however, pointed out that the season was late and that weather conditions can still influence the outturn.

European

★ ★

CONDUCTED BY C. F. G. RAIKES
Manager European Branch
52 Mark Lane London, E. C. 3, England
Telegraph and Cable Address,
"Northwestern Miller, Mark Lane, London"

How the Subsidy System Operates in Great Britain

By **L. F. Broekman**

DEVELOPMENT of the subsidy system of keeping down food prices to the consumer in the United States follows a pattern very familiar to the people of Great Britain. Of subsidies we have so many that the average citizen does not know for which commodities he is paying actual cost.

British millers have Canadian wheat delivered to them at a flat price, regardless of the ups and downs of the Winnipeg market, and they sell flour to bakers at a flat price, which is made to fit the price of bread with the aid of a further subsidy of 5s ($1.20) per 280 lbs.

Consumers buy bread at the rate of 9d (18c) per 4 lbs, and it has been stated in Parliament that without subsidies the price would have to be 11d (22c). Sugar, now 3d (6c) lb, would be 5½d (11c), and potatoes, now 1s 1½d (27c) per 7 lbs, would be 1s 8½d (41c).

The Liberal party, which sits on the opposition side in Parliament, sometime ago appointed a subcommittee to draw up a postwar plan for British agriculture, farm products, to a large extent, being subsidized at present by having state-fixed selling prices decreed. In its report this subcommittee says that the present large subsidies cannot continue indefinitely. However, the opinion is expressed that subsidies are preferable to other forms of protection and should be continued until agriculture is self-supporting.

The Liberal party has always set its face against tariffs being imposed on imports, but its leaders know as well as anyone else that British agriculture can never be self-supporting so long as its products have to be sold in competition with imported foodstuffs marketed here at less than the British cost of production. In any case, Sir Archibald Sinclair, the leader of the Liberals, in a speech on the subject, referred to the loss of income from Britain's former overseas investments, which was largely paid in the form of foodstuffs. He might have added that the lend-lease and other forms of interallied generosity would not continue indefinitely.

The longer the war goes on the more clear it becomes that this country must produce as much as possible of our food requirements here at home. The farmers and farm workers have done wonders in expanding home production already, and this year's grain crops have been remarkably favored by Nature. Last autumn was mild and free from heavy rain, which weather continued until Christmas. January was free from severe frosts and enough rain fell to provide a subsoil moisture sufficient to combat the dry early spring which followed and enabled a huge spring seeding to be effected and finished—some weeks earlier than was accomplished last year on a smaller acreage. Autumn sown fields came into ear in April—earlier than ever experienced before.

The summer, until late in July, was cool and crops matured very slowly. A few fields of winter barley and oats were cut in the closing days of June but not until mid-July was there much further progress. The first wheat was cut on St. Swithin's Day (July 15). The countryside then was bare of wheat-stacks and port millers are using nearly all Canadian wheat with the 10% of diluents—mostly barley.

Oatmeal Millers' Association Formed in England and Wales

LONDON, ENG.—At a recent meeting in Birmingham of the oatmeal millers of England and Wales it was unanimously decided to form an oatmeal millers' association. H. L. Kendall, managing director of the Usk Vale Milling Co., Ltd., Abergavenny, Wales, who was instrumental in convening the meeting, was elected president. He explained that the prime reason for an association was to have a representative body of oatmeal millers to confer with the Ministry of Food, and that the idea was encouraged by the ministry. The idea also had received the support of more than half the total number of oatmeal millers in England and Wales and the response represented an initial membership of 50% of the trade or 90% in tonnage of the total output of oatmeal in England and Wales.

Mr. Kendall said it had been suggested that they should contact Scottish oatmeal millers, but the constitution of the Scottish Association would not admit members from England and Wales. Breakfast cereal manufacturers, he said, had a wartime association, but oatmeal millers were excluded from their constitution, so they had to form an association of their own. There are over 60 oatmeal millers in England and Wales —36 being in England and 26 in Wales.

Mr. Kendall has had a varied career. At the start he was engaged in estate management and the breeding of pure bred livestock. This was interrupted by the outbreak of World War I and his being called up to join his unit of Berkshire Yeomanry, with which he served in the Dardanelles, Egypt and Palestine. On his return to civilian life at the end of the war he went to the United States to take charge of an agricultural estate, on which he built up a celebrated herd of pure bred Shorthorn cattle, known as the Yale herd. The owner of the estate died at the beginning of the economic depression in the United States and the herd was dispersed.

Mr. Kendall then became connected with the Schuler Foods, Inc., Rochester, N. Y., and later returned to Great Britain, and became largely instrumental in building up the Manufacturing Confectioners (Sugar) Co. of Usk Vale Food Products, Ltd. In 1941 he interested himself in the formation of the Usk Vale Milling Co., Ltd., Abergavenny, and is managing director of these two companies and director of six other companies.

—BREAD IS THE STAFF OF LIFE—

HOT SPRINGS CONFERENCE DISCUSSED IN PARLIAMENT

LONDON, ENG.—Anthony Eden, in the House of Commons, recently congratulated the United States government on the successful outcome of the Hot Springs Food Conference. He called it the first experiment in comprehensive international discussion of postwar matters. He and other members of the British government had been greatly impressed by the fact that in the midst of a war representatives of more than 40 like-minded nations could meet together and achieve general agreement on so many fundamental principles.

The task of increasing food resources and improving diets, Mr. Eden said, was an aim which it was the intention of the British government to pursue, despite the inevitable difficulties entailed by the war. At the same time the conference had made it clear that freedom from want of food depends on matters largely outside the scope of purely agricultural and nutritional policy.

Lord Woolton, speaking on the same subject in the House of Lords, said that what was called overproduction of food was really due to inadequate consumption. If nations jointly and severally accepted and discharged the responsibilities of seeing that their people had the food needed for life and health, that would create a demand for food which would provide an ever-expanding market for the produce of the great food-exporting countries. In his opinion one of the most valuable proposals of the conference concerned the creation of a permanent organization in the field of food and agriculture. Until there was enough food to go around luxuries would have to wait.

Earl de la Warr's criticism on the report of the conference was that it was lamentably weak and did not deal with the problem of having stable prices and stable markets. Lord Samuel, on the other hand, thought it might well prove to be one of the most useful state papers of our time. Lord Strabolgi suggested that want could not be abolished by meetings but only by sowing and reaping.

From the British point of view the success of the conference, Lord Woolton said, was largely due to the fact that the British government had sent its delegation with a body of coherent and constructive ideas, based on no narrow interpretation of British interests. The British government had no hesitation in accepting the resolutions and the obligation to give effect to them. The first few years after the war were bound to be a time of great stringency on the food front and co-ordination of the procurement of food supplies must go on as long as shortages continued.

Mr. Eden, in the House of Commons, said that it was the intention of the British government to participate fully in the work of the interim commission that had been established to carry on the work of the conference and to prepare a plan for a permanent organization in the field of food and agriculture. The government was also determined to do everything possible to give effect to the resolutions of the conference in respect to the relief of peoples living in occupied countries.

—BREAD IS THE STAFF OF LIFE—

PROGRESSIVE RATIONING OF FOOD IN INDIA ANNOUNCED

LONDON, ENG.—Sir Mahommed Azizul Huque, commerce member in the Indian government, announced at a recent food conference in Delhi that measures were to be taken by the government in India to meet the food situation. He said that progressively increasing rationing will be instituted almost immediately in urban areas. Though no maximum prices will be fixed by statute at the present stage every possible step will be taken to bring down price levels and to stabilize prices of all commodities.

There is no overall shortage of food grains in India. A bumper crop of wheat was harvested last spring. But there is grave maldistribution, for which responsibility is shared by all parties from the cultivator upwards.

A former director of supplies in the food troubles in India of 1918-20 writes to the London Times that the food situation gives grave occasion for anxiety. In face of an absolute shortage of supplies since Burma was lost direct control of food supplies and their prices has not been attempted.

—BREAD IS THE STAFF OF LIFE—

EXPORT WHEAT MOVES WEST

WINNIPEG, MAN.—Export business in Canadian wheat last week totaled roughly 3,000,000 bus and was divided between the United Kingdom and CCC in the United States. It was understood that some of the latter had been taken for shipment to California livestock feeders. Reports indicate that Canadian wheat will move to that state via Vancouver and from that Canadian port by barge to the ports of destination.

Stuffed Straights

FROM THE MANAGING EDITOR'S SIFTER

By Carroll K. Michener

The very literary but spiritually anemic John Steinbeck not long ago wrote from England that the American aviators based there had no hatred in their hearts. This, it was clear, was the way Mr. Steinbeck thought it should be. But there is at least one American soldier who thinks differently and feels differently. He was once a junior member of the editorial staff of this journal. Now he is in a Pacific jungle fighting Japs. He writes: "Yes, we hate, and we hate with all the venom born of fear of the night." He cannot afford not to hate, for the sake of his own safety and for the sake of getting his bitter job done. Only on the home front, where there is no "fear in the night," can we afford the luxury of loving the enemy—and it is an indulgence that makes the task on the fighting line more difficult and a happy issue out of our afflictions less certain.

THE GREATER MILL.—The other day Mr. C. C. Bovey, one of the very wise elder statesmen of the flour milling industry, reminded us of an article published about half a century ago in THE NORTHWESTERN MILLER, under the caption adopted for these paragraphs. It was an effort to put into words the profound change that had come upon the industry in that era—the change from a craft to a merchandising enterprise. In the vital function of modernized marketing the industry had been backward. Suddenly, in the wake of the milling revolution of the seventies and eighties, which brought in its train a great expansion in productive capacity and confronted the craft with a competitive situation that had never before plagued it, flour milling opened its eyes to a new world of opportunity and endeavor. The story, as it was written by a member of the staff of this journal in 1894, is irresistible:

"In these times of excessive competition in the flour trade, it would seem as though the greater mill were the milling office, for it is the lever by which the machinery of the mill is set in operation. Its ramifications are impressively extensive, penetrating channels of which the average man has little conception. How little the methods of a great milling office are understood may be inferred from the fact that volumes have been written on the manufacture of flour, but only paragraphs on the marketing of the same. Yet the sale of flour means the handling by a force of skilled employees of a business involving in two instances, at least, $15,000,000 to $20,000,000 a year, all of which is in cash. It means the spanning of the whole civilized world by the product of the mill. It also means that largely dependent upon such sales is the life of a great portion of the vast agricultural territory of the United States.

"The methods used by great mills to place their flour on the market are many and varied, and the newspapers are not the only means employed to display the resources of the mills. A very common way which the miller seeks to get his goods noticed is by placing a circular inside every barrel of flour he sells. Another well-known plan is to plaster with posters the bill-boards, fences, walls, etc., of large cities. A novel method of advertising—and a very forcible one—is to employ women to bake bread in grocery stores of cities. Along with this baking advertising matter is distributed. The pure food exhibits of many stores also contain flour booths.

"One of the most recent innovations in the advertising trade is that adopted by the Washburn Crosby Co. This company has built a great flour barrel on wheels, fitted up like a coach, which is moved about from place to place, and made the distributing center for tiny barrels of flour.

"The elaborate advertising done at county fairs and at the World's Columbian exposition needs no explanation. The methods employed by the Washburn Crosby Co. at the Chicago exposition were original, natural and effective.

"Much excellent advertising is now done through visitors to the mills, nearly every firm making it a point to give visitors every consideration and to leave in their keeping a neat little souvenir of the visit, in the form of an advertising book. Street cars and suburban trains in large cities are other advertising methods used by millers.

"So extensive has the advertising business become that to handle it is almost the exclusive business of one man, and tens of thousands of dollars are spent in this department alone every year."

No less a miller than Charles A. Pillsbury, "the head of the greatest consolidation of flour mills in the world," (so wrote our confrere of another generation) subscribed to the thesis that the mill office was of greater importance than the mill itself. Recognizing the axiom that anything well manufactured was half sold, he nevertheless went so far as to declare that there were so many highly-skilled mechanics and such good mills as to require far less thought in manufacturing flour than in placing it upon the market. His own head millers had been with him so many years, he said, and were so experienced, that it was impossible for them to turn out poor flour.

An extraordinary flour merchandising policy was outlined.

"The sale of flour," Mr. Pillsbury said to his interviewer, "is a business science, in the conduct of which several important principles should be carefully followed. In the first place, the best and most reliable agents should be employed to handle one's flour. We never allow our agents to misrepresent, nor do we permit them to induce consumers to buy beyond their immediate wants. Honesty is the best policy, for two reasons; first, because it is right, and, secondly, because it pays to be honest.

"We conduct our business on the Quaker principle of noncombativeness. We pay all claims and pay them immediately, rather than have trouble. Then, afterward, if we find that any of our agents has lied to us regarding such claims, we give him his walking-papers at once. By such a sifting-out process we eventually get only the most trustworthy agents, and avoid the unpleasantness that is certain to arise from contact with unreliable men.

"By our policy of refusing to allow consumers to buy beyond their immediate wants, we avoid that great bane of the trade—deferred shipments. Simply by refusing to allow a man to take out more flour than he really needs, we do away with that nuisance. Of course, another reason why we are not troubled with buyers refusing to take out their orders is because our brand is a long-established one and, accordingly, finds a ready sale. In that respect it is unlike brands that are comparatively unknown and hence difficult of sale, and which are kept in stock to be 'floated' on the strength of a new consignment when the market is ripe.

"Another good rule to be observed in the sale of flour is to pay more attention to your own than to other people's prices. Most millers give too much thought to their competitors' prices and too little to their own. This principle is not, with me, the result of a successful business, but the cause. It is a policy that I inaugurated at the very outset of my milling career. Some men, I admit, are so constituted commercially that they cannot, from the very nature of things, observe such a principle. As illustrative of the prevalently false sentiment of the milling trade in this particular, I received a letter the other day from a customer, saying that he could buy our neighbor's flour at a figure 15c below our quotations. I answered him immediately that I was surprised at such a statement, for I thought that the other fellow's prices were at least 25c below our own.

"I cannot too firmly emphasize the danger to the trade from this short-sightedness that seems to pervade the milling business. A miller who pays too much attention to other people's prices and too little to his own will, sooner or later, recognize his mistake. If he could but see where his foolish course is landing him, he would, no doubt, call a halt at once.

"Another point to be observed in the milling business which I have found very successful, is practically to give no time in sales. Our business is done almost entirely on a sight-draft basis, and our flour is paid for, virtually, as soon as customers receive their bills of lading. A man who gets time from anybody pays for it eventually, and he pays not only for the interest but for the risk. Anyone who thinks that by getting time on his payments he gains a point deceives himself. Flour can always be bought more cheaply on sight drafts than on time."

The flour industry still does a lot of pious and wishful thinking along this line, but there has been no improvement upon the formula. Neither has there been much of an improvement upon Mr. Pillsbury's performance.

So you think Betsy Ross made the first American flag with stars and stripes? And you still believe that the flag that crossed the Delaware really was starred and striped as the painter made it? Then you must be debunked, and George A. Zabriskie, the historically-minded New York flour man, is just the chap to do it. He HAS done it, in fact, in a handsome little booklet now being distributed among his friends. He calls it "The Flag of the Free." It is a scholarly and delightfully illustrated piece reprinted from the New York Historical Society Quarterly Bulletin. It is an important addition to the long list of books and booklets that have been given the Zabriskie imprint in recent years.

. . . From all accounts, baker's bread on the grocer's shelves is fresher than ever before. The non-consignment selling rule which went into effect last January was expected to prevent waste by cutting down stales. Once it got into the store bread had to stay until sold—it couldn't be exchanged or rolled down the street to the next grocer. That might have meant less ultimate waste but not necessarily less stale bread. Everything depended upon the element of good bakery merchandising and good store management. With careful adjustment of supply to demand, the public has benefitted; now baker and grocer tend to benefit in turn from a better public appetite stimulated by continued experience with fresh bread. Something good to hang onto when post-war unscrambling begins.

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These Brands Meet Every Shop Need
The ACME FLOUR MILLS CO.
Oklahoma City, Okla.

Two of the Nation's Finest Flours
"AMERICAN EAGLE"
"THE ADMIRAL"
The H. D. LEE FLOUR MILLS CO.
Salina, Kansas

PAGE'S FLOURS
THE THOMAS PAGE MILL CO.
Topeka, Kansas

NATIONWIDE SERVICE
To the MILLING INDUSTRY and GRAIN TRADE

Throughout the country the credit facilities of the First National Bank in St. Louis are used by millers and members of the grain trade.

Ours is an understanding service based on long experience with their needs and problems, under constantly changing conditions.

We cordially invite new accounts in this field—not to the exclusion of your nearer-at-hand banker, but to supplement the credit structure you have already established.

☆

FIRST NATIONAL BANK
IN ST. LOUIS
Broadway • Locust • Olive

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

For Over Fifty Years...
KING'S GOLD
KING'S BEST
GOLD MINE
EXCELSIOR
...Made in Minnesota
Minnesota makes the Best Flour in the World.
H. H. King Flour Mills Company
MINNEAPOLIS, MINNESOTA

Van Dusen Harrington Co.
• *Grain Merchants* •
BUSINESS FOUNDED 1852
MINNEAPOLIS DULUTH

LIBERTY FLOUR
GEORGE URBAN MILLING CO., Buffalo, N. Y.

A Mill of Roman Imperial Days, Turned by a Man and an Ass

Roman Era Flour

(Continued from page 4.)

and four sextars of bran. This specification illustrates the completeness with which grading was carried out, and the full knowledge of fine flour, fine and coarse meal, seconds, and bran which the Romans possessed.

Increased price, due to bolting, is also suggested by one author, who observes, "When the prices of grain are moderate, meal sells at 40 ases the modius, bolted wheaten flour at 8 ases more and bolted flour of winter wheat at 16 ases more." In Pliny's term "flos" or "flower," that is, the produce of the best winter wheat, we may note the origin of the English word "flour."

The original word "flower," as applied to ground wheat, is said to have prevailed in the north of England till about 1609; still it has been observed in a milling deed at Clithero Castle, entitled "Farm of a toll called Flower Toll," dated 1660. But it was already practically obsolete when, in 1560, the Geneva Bible appeared, containing the word flour; not to mention 1611, when the Authorized Version was issued with the same word flour again in use.

This modern form of the word seems, however, to be of ancient origin. The fourteenth century customs of London, cited in Liber Albus, contain an enactment prohibiting bakers from selling brown flour for making best cakes, or in any other way misrepresenting the quality of their flour. Though this is compiled in Anglo-Norman, the one word in question is not written *fleur* or *fleur de farine*, but flour, the ordinary popular designation of the article at the time: *Nulle pestour qi fait payn tourte vend sa flour as kens pur pastes faire, neu altre manere oustee la floure au perille qappent.*

Among the Romans the process of washing wheat and other grain was followed by drying it in the sun previous to grinding. Pliny frequently mentions sun drying before grinding. Of sesame, a white grain, for instance, he says:

"Sesame should be first steeped in warm water, and then laid out to dry, after which it should be rubbed out briskly; and then thrown into cold water, so that the chaff may be disengaged by floating to the surface; and the grain should afterward be spread in the sun to dry."

Drying in the sun was also the usual preliminary to storing, and seems to have been universally adopted later throughout Europe.

An Egyptian Carving Showing Grain Sifting in the Land of the Pharaohs

The grain was ordinarily moistened with fresh or salt water before being ground, as in one of the methods of adulteration described by Pliny:

"They pick out the whitest and largest grains of wheat and parboil them in earthen pots; after which they dry them in the sun till the grains have regained their original size. Then they are lightly sprinkled with water and ground in a mill."

Salt water was occasionally employed for the purpose. "The wheat of Clusium and Arretium, if converted as much as possible into fine flour, will yield to the modius 16 lbs of white flour, and 3 lbs of seconds, with half a modius of bran. The differences depend very materially upon discrimination in the grinding. When the grain is ground quite dry, it produces the more meal; when sprinkled with salt water it yields the whiter flour, though, at the same time, more bran."

——BREAD IS THE STAFF OF LIFE——

DECENTRALIZATION POLICY ANNOUNCED BY OPA CHIEF

As the first step in a broad program of decentralization, Chester Bowles, general manager of the Office of Price Administration, has announced the appointment of an executive assistant for field operations.

Frank E. Marsh, OPA regional administrator for San Francisco, was appointed on a temporary basis to fill the position.

"Effective price control and rationing depend on local war price and rationing boards, staffed by thousands of loyal volunteer workers," Mr. Bowles said. "I do not believe we can overemphasize the importance of their part in the program. Theirs is a hard job and we are going to do everything possible to make their task easier by giving them the help and authority they need.

"For this reason, I am borrowing from the field a man who knows the work, the problems and the needs of our 5,500 ration boards and our district and regional offices, and I am authorizing him to act for me in working directly with the OPA organization throughout the country. In this way, the field organization will have a strong voice in OPA policies and direct connection at all times to my office."

——BREAD IS THE STAFF OF LIFE——

Western Canada Visible Grain Supply

Visible supply of grain in the western inspection division Aug. 6, 1943, and receipts and shipments during the past week, in bushels (000's omitted):

Fort William and Port Arthur—	Wheat	Durum	Oats	Barley
Semi-public terminals	53,467	1,490	8,115	9,043
Private terminals	1	..	38	12
Totals	53,468	1,490	8,152	9,055
Vancouver-New Westminster	17,238	..	68	21
Int. public and semi-public elevators	14,775	..	33	119
Churchill	2,617	..	..	..
Victoria	1,024	..	..	..
Prince Rupert	1,210	..	..	..
Totals	90,331	1,490	8,254	9,195
Year ago	168,418	131	809	1,229
Receipts during week—				
Ft. Wm.-Pt. Ar.	3,285	131	2,644	1,983
All other public and semi-public terminals, western div.	73	..	44	11
Totals	3,356	131	2,688	1,994
Shipments during week—				
Ft. Wm.-Pt. Arthur—				
Lake	5,494	..	433	767
Rail	260	7	712	339
All other public and semi-public terminals, western div.	210	..	17	7
Totals	5,963	7	1,162	1,114

TOTAL RECEIPTS

Aug. 1, 1942-Aug. 6, 1943

Ft. Wm.-Pt. Ar.	117,165	3,791	63,902	51,533
All other public and semi-public terminals, western div.	6,755	..	821	1,369

TOTAL SHIPMENTS

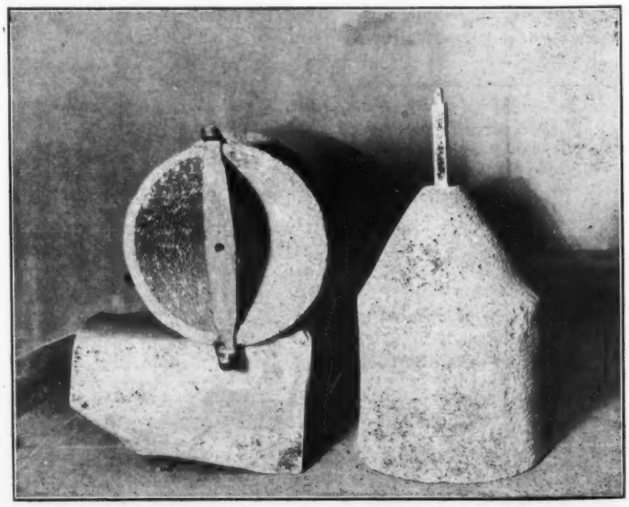
Aug. 1, 1942-Aug. 6, 1943

Ft. Wm.-Pt. Ar.	189,407	2,583	59,495	44,160
All other public and semi-public terminals, western div.	9,641	..	753	1,210

Flaxseed Receipts, Shipments and Stocks

Receipts, shipments and stocks of flaxseed at principal primary points for the week ended Aug. 7, in thousand bushels, with comparisons:

	Receipts		Shipments		Stocks	
	1943	1942	1943	1942	1943	1942
Minneapolis	246	62	14	38	59	436
Duluth	18	62	..	55	68	106



Two Parts of an old Roman Mill: Upper Stone (left) and Lower Stone(right)

CROWN MILLS
PORTLAND, OREGON
Millers of High Grade Bakers, Family and Export Flours.
"THE FLOUR SUPREME"

AMES HARRIS NEVILLE CO.
PORTLAND, ORE. SAN FRANCISCO CAL.
BURLAP AND COTTON BAGS AND SEWING TWINE

The Rodney Milling Co.
13,000 CWTS CAPACITY
KANSAS CITY, MISSOURI
"Heart of America" FLOUR
CHICAGO OFFICE:
Kelly Flour Co., 919 N. Michigan Ave.
BOSTON OFFICE:
Seaboard Allied Milling Corporation
1209 Statler Bldg.

"DURAMBER"
SEMOLINA
FANCY No. 1
Milled from Carefully Selected
AMBER DURUM WHEAT
AMBER MILLING CO.
MINNEAPOLIS
Cable Address: "AMBERMILCO"

DOBRY'S BEST
BEST OF THE WEST
DOBRY FLOUR MILLS, Inc.
YUKON, OKLAHOMA

KING MIDAS FLOUR
KING MIDAS FLOUR MILLS
Minneapolis, U. S. A.

Victor-Champion-Frost King-Headliner
Family Flour De Luxe
THE CRETE MILLS
CRETE, NEB.

"DIAMOND D"
A High Grade Baker's Spring Patent
Milled Under Laboratory Control
from Montana Spring Wheat
Sheridan Flouring Mills, Inc.
SHERIDAN, WYOMING

MILLFEED MARKETS

Minneapolis: Mills are gradually cleaning up their old contracts and, occasionally, are willing to sell a little ahead. But their offerings, for deferred delivery, fail to satisfy customer needs. All classes of buyers seem ready to absorb any quantity offered for fall and early winter delivery at the ceiling, and are disappointed when mills turn down proffered business. Deferred business accepted has been on basis of ceilings on date of shipment. Good pasturage generally and the heavy production of government ground wheat, and of coarse grains, has had little effect upon demand for millfeed, current output of which is absorbed as made. Apparently there will be little opportunity for any industry to accumulate stocks against next winter's needs.

Fort Worth: Demand unsatisfied; trend tight at mixed car ceiling; supply inadequate; current production going in mixed cars with flour or on old contracts; wheat bran $43.40, gray shorts $43.40, in mixed cars, del. TCP.

Oklahoma City: Excellent demand, with no change in prices; quotations, basis burlap bags, carload shipment for southern deliveries: bran, mill run and shorts $1.90 @1.95 per bag of 100 lbs; for northern deliveries: bran, mill run and shorts $1.85 @1.90 per bag of 100 lbs.

Toledo: Unchanged; demand apparently just as urgent as ever, with supplies nowhere near equal to satisfying it at ceiling levels, or any other levels, however high they might be. It's a case of allocating supplies to customers.

St. Louis: Bran, pure bran, gray shorts and brown shorts $39@39.50; red dog, $39.50.

Buffalo: Feed situation remains unchanged, with demand far in excess of supplies, and with sales all at ceiling levels; trend firm; supply light; bran, std. midds., flour midds., red dog, second clear and heavy mixed feeds $41.55.

Pittsburgh: Demand strong; trend firm; supply limited and scarce; offerings very light; spring bran and red dog, $44.10, nominal.

Boston: Monotonous situation continues in millfeeds; buyers cannot satisfy their needs by any means and mills in no position to offer supplies except in a very limited way; some government wheat still around in the hands of resellers; quotations remain at ceilings; spring bran, midds., mixed feed and red dog, $46.48.

Atlanta: The feedstuffs situation shows no change, with little offerings and very small receipts on previous allotments. Feed manufacturers, dealers and feeders are still having to depend to a great extent on feed wheat. Buying under the present program is reported as very heavy, although deliveries of this wheat are still insufficient for requirements. The southern corn situation remains stationary, as offerings are lacking and deliveries on previous commitments are about completed. Corn mills continue to be shut down over the territory, and feed mills must utilize substitutes for corn. Bran and shorts are at the same ceiling of $46.30 @46.80, with ground feed wheat $47@49, ground oats $66.50@68, ground barley $66.50.

Nashville: Demand continues good, and while offerings are not free they are made now but in mixed cars of flour and feed; however, buyers are anxious to get supplies in any manner; prices still at the ceilings, both bran and shorts at $43.30; however, the mixed car price is $1 over the car lot price, which makes quotations $44.30, Nashville.

Seattle: Good; trend strong; supply limited; $36.50.

Portland: Bran, mill run, shorts and midds. $36.50 per ton.

Ogden: Millfeed situation continues tight, with supplies hard to get despite the fact mills are working to capacity six days per week; heavy turkey and poultry feeding hits supplies; more millfeed needed, with customers rationed; prices continue stationary at ceilings. Quotations stationary; red bran and mill run, blended, white and midds., $36.30, carload lots, f.o.b. Ogden. Denver prices: red bran and mill run, blended, white and midds. $41.10 ton, ceiling. California prices (ceiling): red bran and mill run, blended and white $41.10, midds. $42.10, car lots, f.o.b. San Francisco, Cal., with Los Angeles up $1, ceiling.

Toronto-Montreal: Supplies in Canada are limited; mills cannot meet the demand. Odd lots of bran from winter wheat mills represent the total of exporting sales. No sales for export may be made without a permit. Where obtainable they represent a premium of $13@13.50 ton on the U. S. funds. Bran $29, shorts $30, midds. $33 ton, net cash terms, bags included, mixed or straight cars, Montreal freight basis.

Vancouver: Trend steady; western dealers are having no difficulty in securing supplies despite the heavy country-wide demand. Domestic consumption is exceptional for this season of the year by reason of the large quantity of millfeed going into mixed feeds. This heavy use of mixed feeds in turn follows on the shortage of farm labor and the need for special feeding for livestock. Supplies in dealers' hands here are just sufficient for current needs. Quotations on a cash car basis are unchanged as follows: bran $29.80, shorts $30.80 and midds. $33.80, with no prices or dealings in feed flour.

Winnipeg: No change in situation. Demand keen and all available supplies taken by eastern feeders; no indication of export business; supplies large, but insufficient to meet demand; bran $28, shorts $29, Man. and Sask; Alta. bran $25.50, shorts $26.50; small lots ex-country elevators and warehouses $3 extra.

WESTERN STAR
KANSAS STAR
GOLDEN CREST
★ ★
GREAT FLOURS
FROM THE GREAT
NEW KANSAS CROP
One of the three
will fit your requirements
and your budget
★ ★
The WESTERN STAR MILL CO.
SALINA • KANSAS

PRESTON-SHAFFER MILLING CO.
MERCHANT MILLERS
ESTABLISHED 1865
SOFT WHITE WINTER WHEAT FLOUR A SPECIALTY
Also Choice Blue-Stem and Hard Spring Patents
WE INVITE EXPORT CORRESPONDENCE
General Offices: WALLA WALLA, WASHINGTON
Mills at Waitsburg, Washington, Freewater, Oregon, and Athena, Oregon—Daily Capacity, 3,000 Bbls
Atlantic Coast Office, RAYMOND F. KILTHAU, Produce Exchange, New York.

Fisher's FOR UNIFORM FLOURS
The largest and most modern flour mill and elevators on the Pacific Coast with storage capacity at our mills of 2,500,000 bushels, together with more than one hundred elevators and warehouses in the choicest milling wheat sections of Montana, Idaho and Washington, insure the uniformity of all Fisher's Flours.
FISHER FLOURING MILLS CO., SEATTLE, U.S.A. Domestic and Export Millers
CLIFF H. MORRIS & Co., Eastern Representative, 25 Beaver Street, New York City

WASCO WAREHOUSE MILLING CO.
MILLERS OF
BLUESTEM PATENTS - MONTANA HARD WHEAT PATENTS
PASTRY FLOUR - CAKE FLOUR
Cable Address: "WASCO." All Codes. Daily Capacity 2,000 Barrels
New York Inquiries: Joseph F. Ullrich, Produce Exchange Building The Dalles, Oregon, U.S.A.

WESTERN MILLING CO.
MONTANA SPRING WHEAT PATENT
BLUESTEM—PATENT
FINEST SOFT WINTER WHEAT PATENT
General Offices: Walla Walla, Washington Mill at Pendleton, Oregon

MOSTLY PERSONAL

IN NASHVILLE

Clyde B. Smith, manager of the St. Mary's (Mo.) Mill Co; Norman Christley, secretary-treasurer of the Columbia (Tenn.) Mill & Elevator Co; F. B. Langston, of the Bemis Bro. Bag Co., Memphis, and H. B. Hobbs, sales manager of the Victor Chemical Works, Chicago, visited in Nashville among the flour interests.

ENGAGED

The engagement of Miss Camille Gilbert, secretary of Cohen E. Williams & Son, Nashville flour and feed brokerage concern, to Howard Chandler Johnson, United States Army Medical Corps, stationed at Vanderbilt University school of medicine, has been announced.

SOUTH CAROLINA VACATION

W. A. Swain, Atlanta representative of the International Milling Co., Minneapolis, spent his vacation at Mount Pleasant, S. C. Mrs. Swain and Henrietta, daughter, went with him.

WITH SOUTHEASTERN TRADE

Leslie Pritchett, general sales manager, Burrus Mill & Elevator Co., Fort Worth, Texas, called upon the trade in the Southeast.

PROMOTION

Hugh S. Wilson, general agent for the Lehigh Valley Railroad Co. at Minneapolis, has been promoted to general agent at Chicago, and will leave shortly to take up his new duties.

IN CHICAGO

K. L. Burns, president, Globe Milling Co., Watertown, Wis., visited the trade in Chicago last week.

INDIANA TOUR

Charles W. Sherman, vice president of Standard Milling Co., Chicago, made a business trip through Indiana last week.

MINNEAPOLIS BUSINESS

Herman Steen, vice president of the Millers National Federation, and W. Floyd Keepers, of the Wheat Flour Institute, Chicago, spent a few days in Minneapolis last week on association matters.

SHORE HOLIDAY

David Coleman, of David Coleman, Inc., New York, is staying this week at Deal, on the New Jersey shore, where his family is spending the summer.

MONTH IN MOUNTAINS

Ernest Buchow, of H. J. Greenbank & Co., New York, has left to spend the remainder of the month in the New England mountains.

TRANSFER

George Halliday has been transferred from the Minneapolis office of Cargill, Inc., to Cargill's Toledo elevator, Maumee, Ohio, in the traffic department.

FISHING IN CANADA

Cyrus S. Coup, president, Northwestern Elevator & Mill Co., Toledo, has joined a party from St. Louis, including his son-in-law and daughter, on a fishing trip to Lake of the Woods, Canada, and will be gone two weeks.

ENTHUSIASTS

Lester Ritterhouse, traffic manager, and Carl Steele, superintendent, for the Arnold Milling Co., Sterling, Kansas, couldn't manage their usual drive to Colorado, but did manage to get train standing room for a fortnight's sport in the mountain streams.

RELAPSE

P. H. Baum, secretary-treasurer of the William Kelly Milling Co., thought he was on the road to recovering his voice after a 10-day silence when negotiating a new union contract necessitated his speaking often and he was back where he started, writing notes and whispering.

AT HEADQUARTERS

Ellis English, vice president Larabee Flour Mills Co., Kansas City, is visiting Commander-Larabee Milling Co. headquarters in Minneapolis.

VACATION PLANNED

David W. Moore, merchandising manager for the Russell-Miller Milling Co., Minneapolis, who is in the East, will be joined shortly by Mrs. Moore, for a long deferred vacation trip.

MINNEAPOLIS VISITOR

Walter Coleman, manager of the Chicago branch of the Russell-Miller Milling Co., is visiting in Minneapolis.

EXPORT MAN IN EAST

Arthur C. Bredesen, export manager for the International Milling Co., Minneapolis, is in the East.

OBITUARY

WILLIAM J. REICHERT

William J. Reichert, 79, president of the Reichert Milling Co., Freeburg, Ill., died Aug. 4 at his home. He had been ailing for the past year or so. Surviving him are his widow, Mrs. Clara Reichert, and three children, two sons and a daughter. Mr. Reichert was a former president of the St. Clair National Bank at Belleville, Ill., and was a large land owner.

W. I. NOLAN

W. I. Nolan, of Minneapolis, a member of the Minnesota Railroad & Warehouse Commission, died Aug. 3, while visiting in Winona. He was former lieutenant governor of Minnesota, and long a colorful figure in state politics.

ANDREW GOODHOLM

Andrew Goodholm, 81-year-old pioneer miller of Oklahoma, died at his home in Stillwater, Aug. 3, following several years of ill health. Mr. Goodholm was born in Sweden but came to America when a young man, and went to Oklahoma City in 1894. He was one of the organizers of the Acme Milling Co. there and retained his connection with that organization until 1906 when he entered the realty business. In 1906 Mr. Goodholm bought the Stillwater (Okla.) Mill & Elevator Co. plant and reorganized it as the Stillwater Milling Co. He served as president of the mill until his recent retirement.

WALTER CARROLL

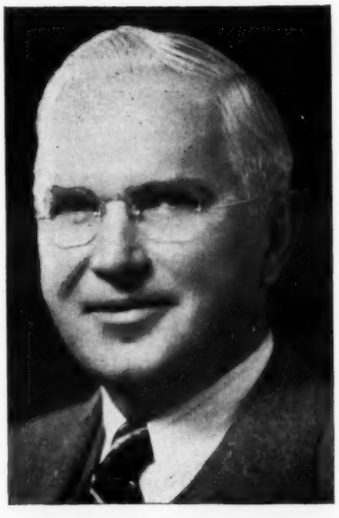
Walter Carroll, Gastonia, N. C., prominent in Southern Bakers Association affairs for many years, died of a heart attack on Aug. 6. He owned the Grocers' Baking Co., Gastonia.

——BREAD IS THE STAFF OF LIFE——

HENRY J. DRAKE PRESIDENT OF BROENNIMAN CO., INC.

NEW YORK, N. Y.—Henry J. Drake, former treasurer of the Broenniman Co., Inc., has been elected its president, succeeding George R. Flach, who recently joined the sales force of the Standard Milling Co. Mr. Drake has been connected with the Broenniman organization for the past 30 years. J. Petrick succeeds him as treasurer of the company, all other officers remaining the same.

★ NEW ENTERPRISE ★



Bert D. Ingels has severed his 20-year connection with Wallace & Tiernan Co., Inc., to start in business for himself as a consulting cereal chemist, with temporary offices at his home, 111 Harrison Street, East Orange, N. J.

Mr. Ingels took his first job as a cereal chemist 35 years ago for the Port Costa Milling Co., Vallejo, Calif., and when that mill was absorbed by the Sperry Flour Co., he became its first chief chemist. He joined the Wallace & Tiernan group in 1923 and 7 years later became manager of its flour department. During the past two years his activities have been directed to conferences, conventions, and to public hearings on standards for bread and flour.

He is a member of the American Association of Cereal Chemists, the American Society of Bakery Engineers and the Bakers Club of New York. He helped organize and became the first chairman of the New York Section of the AACC and is a past president of the Holes-In-Bread Club of New York City.

Mr. Ingels' experience in the cereal field will make his advice helpful to the baking and milling trades in his new capacity of consulting cereal chemist.

WITH THE ARMED SERVICES

Commander Arthur R. Helm, during the last few months serving at U. S. Naval Air Station, Brooklyn, was ordered recently to Roosevelt Field, Mineola, L. I., where he is now stationed as commander of the U. S. Naval Air Facility. Commander Helm is a son of Willis C. Helm, vice president Russell-Miller Milling Co., Minneapolis.

★

Marine Private M. C. Cecka, son of Thomas G. Cecka, general superintendent for the International Milling Co., Minneapolis, home recently on furlough, has been decorated with the silver star award for "conspicuous gallantry and intrepidity" in an attack at Tulagi, in the South Pacific, last August.

★

Ernie Pyle, the newspaper war-columnist, ran across Joseph Raymer during the embarkation on Sicily. He discovered that Joe, an electrician's mate on the war vessel to which Ernie was assigned, was a pancake flour salesman for Pillsbury Flour Mills Co. before the war. Joe admitted to Ernie, and Ernie faithfully reported, that Joe was a very good flour salesman (central-southern Ohio) and that he ran off with a nice company bonus for it. Joe was in the Navy from 1924 to 1928 and knew his way around on ships when he made his current hitch. Home, Columbus, Ohio, where he has a wife and 4-year-old daughter.

★

Ensign Bernard Schmidt, II, son of Albert S. Schmidt, vice president of Capital Bakers, Inc., Harrisburg, Pa., has been promoted to lieutenant, junior grade, in the United States Naval Reserve. Lieutenant Schmidt, who has been in active service for more than a year, has participated in both the North African and Sicilian campaigns. In the latter landing he was in charge of communications on an American flotilla.

★

W. J. Gathof, Louisville flour broker, has received word that his youngest son, J. S. "Jack" Gathof, has been promoted to first lieutenant. He is in the Army Air Force at Mac Dill Field, Tampa, as a bomber pilot. His brother, Captain William J. Gathof who was formerly with his father in the flour business, is now stationed at Camp Livingston, La.

★

Sergeant James L. Jewell, former Kansas City flour broker, arrived in Kansas City on furlough Aug. 9. He will return to his camp at Spokane next week with Mrs. Jewell, who has resigned as secretary to E. P. Mitchell, president of Flour Mills of America, Inc.

——BREAD IS THE STAFF OF LIFE——

BUYS GRAIN AND FEED PLANT

The Barry-Carter Milling Co., of Lebanon, Tenn., has purchased the Dodson Grain & Feed Co. of Lebanon.

SURETY BOND RULE BECOMES EFFECTIVE

Revised ICC Regulation Requires Surety Bond in Lieu of Blanket Bond Where Bill of Lading Isn't Surrendered

MINNEAPOLIS, MINN.—The revised ruling of the Interstate Commerce Commission with reference to the delivery of shipments without surrender of bill of lading is now in effect. The principal change is a provision that a corporate surety bond must be issued, equal to twice the invoice or value of the property, in lieu of the blanket bond of indemnity formerly provided, where bill of lading is not surrendered within five days after delivery of shipment.

The order reads: "When a shipment has been released under a blanket bond of indemnity, the written order or other required document must be surrendered as soon as available at a bank, or other source. In the event the written order or other required document is not surrendered within five days, exclusive of Sundays or bank holidays, or, at the carrier's option, a lesser time, immediately following the day whereon the shipment was delivered, further delivery of shipments under the bond shall cease, unless or until the principal shall deposit with the carrier's agent Substitute 1 (currency, certified check or bank cashier's check equal to 125% of the invoice or value of the property), or a specific bond of indemnity in amount equal to twice the invoice or value of the property, with a corporate surety duly authorized to write surety bonds and regularly engaged in such business."

The Minneapolis Traffic Association has gone on record as objecting to this provision for a corporate surety bond, on the grounds that its cost would be excessive to the shipper. However, a plan has been worked out by a Minneapolis insurance agency that is believed will prove satisfactory to both carriers and shippers. It is understood that two Minneapolis milling and grain companies have already adopted the plan, and that one of them has referred it to the 39 railroads with which it does business throughout the country.

Briefly, the plan is to file a single shipment corporate surety bond on behalf of a particular industry, on the form required by each railroad, so amended that its terms will apply specifically to "bond certificates," which become a part of this so-called master bond, and each certificate describes specific shipments. The industry will be supplied with these certificates in multiple form. When a shipment arrives at its destination and the necessary documents are not available, a certificate will be filled in and given to the carrier's agent and the shipment released. A copy of this certificate will also be filed with the surety. The terms of the master single shipment corporate surety bond will apply to this specific certificate and shipment.

Under this plan, a minimum premium would be established, with a rate per car or per $1,000 of value of shipments, and if the minimum premium is exceeded, the industry would be billed monthly for the additional premium earned. A penalty charge would be levied for certificates outstanding over a reasonable period of time. This would be an incentive for the industry to search for the bill of lading and surrender it as promptly as possible.

The argument put forward in favor of this plan is that inasmuch as the single shipment bond is without time limit, there would be no necessity for policing on the part of the railroad or the industry, and since this procedure will eliminate the necessity for blanket indemnity bonds, there will be no necessity for the railroad, or the industry, to keep a constant check on the volume of shipments outstanding against the blanket bond. These certificates, being in the hands of all the local offices of the industry, will be immediately available, will require completion only as to the data of the shipment, its value, etc., and will not require the signature of an agent.

The certificate probably will be prepared in a six-part form. The original will go to the railroad, two copies to the surety and agent, two copies to the local and head office of the industry, and the final copy will serve as a receipt to be signed by the railroad when the bill of lading is surrendered. This receipt will then be sent back to the surety as an evidence of release. The cost to the industry should be on a more nearly pay-as-you-go basis, and the whole procedure promises a saving in detail expense, bond expense, and probably in demurrage costs to many industries, it is pointed out.

——BREAD IS THE STAFF OF LIFE——

Vitamin Loss in Cooking Macaroni Delays Standards

WASHINGTON, D. C.—(Special)—Food and Drug Administration specialists are experiencing difficulty in determining the percentage of loss of vitamins in macaroni and other alimentary paste products in the cooking process, and are holding up a decision on the trade's request for a reopening of the hearing on standards of these products.

The National Macaroni Manufacturers Association petitioned the Food and Drug Administration early this year to reopen the standards question so that evidence could be presented in support of the claim by the manufacturers that enriching ingredients should be authorized and label claims to this effect approved. The Food and Drug Administration has taken the position that alimentary pastes were not suitable carriers for enrichment ingredients due to a loss in cooking, plus the fact that nutrition officials believe that enrichment of these products would not add greatly to the general nutrition of the public. The trade group's petition pointed out that a large segment of the people consumed alimentary paste products, especially now that meats and other foods are scarce.

The Food and Drug Administration also has a problem on its hands in determining whether to make Vitamin D a mandatory requirement in the enriched farina standards, which still await promulgation. It was explained that farina manufacturers object to Vitamin D as a required ingredient but desire to make addition of this vitamin optional. The Food and Drug Administration announced a month ago that enriched farina standards would be issued, but no action has yet been taken in framing the proposed standards.

Trade Recommendations on Feed Wheat Policy are Made to CCC

KANSAS CITY, MO.—Recommendations for getting wider distribution of feed wheat, whole and ground, were being received by the Commodity Credit Corp. at Kansas City Aug. 9 following a meeting the previous week at which the Commodity Credit voiced disapproval of excessive lump sales to large buyers.

Some of the recommendations, made both by the Kansas City and St. Louis feed committees, included compulsory certification by the buyer to the effect that he is holding within 30 days' supply, and also that the processors' margins be held to $8 ton, gross.

To prevent wholesaling and retailing profiteering on feed wheat, one recommendation suggested that OPA millfeed ceilings apply beyond the processor's hands. It was also suggested that a general letter be sent out by processors to feed wheat buyers warning them that profiteering must stop or drastic changes will be made in the program. It is suggested that all handlers report violations to county agents and the CCC.

C. H. Williamson, head of the St. Louis committee, met with W. B. Lathrop, of the CCC, and J. P. Parks, J. P. Parks Co., C. L. Johnson, Cereal By-Products Co., and John M. Lerche, Kansas Flour Mills Co., members of the Kansas City committee, Aug. 9.

The CCC apparently wants the feed wheat to go to more small feed manufacturers and to more retailers, where it will be sold by the sack to the consumer. The ease with which feed wheat can be sold has caused the ground product to be sold, in many cases, in lump quantities to big buyers, without consideration of the smaller inquiries, according to the CCC.

Another complaint that was brought up was the stepping up of prices after the product has left the control of the processor, jobber or broker. Since most of this price increase occurs as the product gets near the consumer, the feed trades see little chance of their policing it. However, they will advise distributors that the margins must be held down or the program will either be crippled or stopped entirely.

——BREAD IS THE STAFF OF LIFE——

FLAX PLANT IN MINNESOTA

According to press dispatches, the Defense Plant Corp., of which Secretary of Commerce Jesse Jones is president, will build a $215,000 plant at Winona, Minn., for processing flax straw. It will be operated by Northwest Flax Industries, Inc., but Defense Plant Corp. will retain title to the property.

——BREAD IS THE STAFF OF LIFE——

GRAIN WEIGHERS SEEK INCREASE

MINNEAPOLIS, MINN.—The grain samplers and weighers of the Minnesota Railroad and Warehouse Commission are demanding a 40-hour, instead of a 48-hour week, and an increase of $25 per month in wages. A compromise offer of a 44-hour week and a $15 increase has been turned down by the union.

SHIPPERS and RECEIVERS

Is Rule 7 of the General Freight Classification as revised July 10, 1943, likely to:

1. **Place you in violation of the Elkins Act through failure to observe the 5-day limit now required on shipments handled under your blanket bond, due to unavoidable circumstances or inadvertance of your agents or those of the Railroads?**
2. **Cause you extra expense in buying certified checks or single shipment corporate surety bonds because of Bills of Lading being lost or delayed?**
3. **Result in expense for demurrage?**
4. **Result in considerable extra detail work?**

Are you interested in a plan which has already met the approval of Industry and Railroads whereby you can immediately obtain a release of all shipments with a minimum of detail and do away with the unsatisfactory procedure provided for under substitute 3 of Rule 7?

If so, write us sending the following information: name and address (include subsidiaries); nature of business; average number of shipments charged against bonds annually; average and maximum values per shipment; average annual number of bills of lading outstanding over five days; number of branch stations; number of railroads to which bills of lading are surrendered.

See News Story on this page

WIRT WILSON AND COMPANY
GENERAL INSURANCE
BUILDERS EXCHANGE MINNEAPOLIS, MINN.

"Originators of the Shippers Draft Bond"

MARKETS IN DETAIL

U. S. FLOUR MARKET

THE SOUTHWEST

Kansas City: Sales by mills in the Southwest light, with the exception of one large order to a southwestern chain baker and a scattered buying by midwestern bakers. Sales 54% of capacity, compared with 108% the previous week and 42% a year ago.

The large chain baker bought about 500,000 bags, or about three months' requirements, and booked it for the first quarter of next year, which in this instance gives that buyer as long a booking as it has had in recent years.

Bakers have varied opinions about the market, but most of them feel the conservative route is to stay well booked. Millers ready sellers now, and the time may come when flour is scarce.

Quotations Aug. 7: established brands family flour $3.80@4, bakers short patents $3.10@3.25, 95% $3.05@3.20, straight $3@3.10, first clear $2.50@2.80, second clear $2.45@2.60, low grade $2.30@2.40 (clears quoted bulk).

Fort Worth: The first week in August showed a moderate improvement in demand; sales probably average 40 to 50% of capacity; practically all routine business in moderate quantities to regular trade in home territory. Operations well maintained at 70 to 80% of capacity. Prices about unchanged. Quotations Aug. 6: family 50's, extra high patent $3.80@4.20, high patent $3.55@3.95, standard bakers 100's, 44% or less ash (ceiling) $3.31; first clears, 100's, $2.75@3, delivered Texas common points or group 3. Clears very slow sale.

Of the mills reporting, 4 reported domestic business active, 7 fair, 4 quiet, 4 slow and 8 dull.

Salina: Demand fair, with prices slightly higher. Shipping directions showing some improvement.

Oklahoma City: Improved sales brought the average to 70%, as compared to 26%. Three fourths of all bookings taken by the bakery trade. Slight decline in operation, which averages 84% compared to 88% last week. Prices are stable and unchanged. Quotations per sack (cwt), delivered Oklahoma points, Aug. 7: hard wheat short patent flour $3.75@4.40, soft wheat short patent $3.75@4.40, standard patent $3.65@4.20, bakers extra fancy $3.58@3.62, bakers short patent $3.50@3.55, bakers standard $3.48@3.53.

Wichita: Sales from 40 to 150%; directions from 80 to 100%; quotations unchanged.

Hutchinson: Although mild interest prevails, flour bookings are slightly under capacity. New contracts generally are small to moderate, with the bulk of the business coming from jobbers. Shipping directions easy.

THE NORTHWEST

Minneapolis: None of the big national companies were in the market last week for spring wheat flour, but their places were taken by smaller independent companies, and fair bookings were reported. Millers do not look for the customary heavy fall buying this year, for the reason that they have considerably more business on their books than normally, and they do not believe the trade could absorb much more.

What they would like, however, would be a freer flow of shipping directions, to enable them to run more nearly capacity. Most companies have a lot of delinquent business on their books, on which carrying charges are being assessed. A capacity run would help the millfeed situation very materially.

Clears are still in very active request, with top grades bringing better than standard patents. The output is inadequate, and some mills are in market to buy clears.

Business done by northwestern mills last week represented about 65% of capacity, compared with 104% a week earlier and 69% a year ago.

Quotations per sack (cwt) Aug. 10: established brands short patents $3.37@3.40, spring first patent $3.28@3.30, standard patent $3.22@3.25, fancy clear $3.26@3.31, first clear $3.08@3.11, second clear $2.56@2.61, whole wheat $3.30@3.35.

Outside mills, including Duluth: More or less interest, but actual bookings light; main portion of trade well covered for time being; inquiry coming from those who failed to get in before advance, and these defer contracting, evidently in hopes of a decline. Directions anything but satisfactory; production light and millfeed output entirely inadequate.

THE CENTRAL WEST

Chicago: A further slowing up in demand. Buyers show no interest and sales are scattered and only in small amounts. Shipping directions only fair. Family business has dropped off considerably with a shrinkage in deliveries. Quotations per sack (cwt) Aug. 7: spring top patent $3.38@3.53, standard patent $3.28@3.50, first clear $3.20@3.46, second clear $2, family flour $4.42@4.50, hard winter short patent $3.34@3.52, 95% patent $3.24@3.47, first clear $2.83@3.20; soft winter short patent $3.90@4.79, standard patent $3.75@4.28, first clear $3.32@3.57.

St. Louis: With flour buyers sitting on the side lines awaiting developments, mills report practically very little change in the situation. Large parcels sold are few and far between. However, bookings of small lots show a slight improvement by bakers for shipment up to 120 days. Family trade continues slow. Demand for all grades of clears fell off sharply. Prices some easier. Jobbers finding sales light, with small scattering of bookings for quick to 90 days. Trade generally prefer waiting before taking on any round lots. Specifications improved.

Quotations Aug. 7: soft wheat bakers patent (ceiling price) $3.98 per cwt, cake flour $4.58, straight $3.74, family soft wheat short patent $4.29, straight and 95% $4.29, first clear $3.32@3.75; hard wheat bakers patent (ceiling price) $3.44, family short patent $3.57@3.83, straight and 95% $3.44@3.49, first clear $2.68@3.06; spring wheat bakers patent, straight and 95% $3.44.

Toledo: Probably no other millers in the country are confronted with exactly the same confusing and complex situation that faces the soft wheat millers, at least as it finds reflection at Toledo. For illustration, as high as $1.75 was bid and paid for soft red wheat, No. 2 basis, last week, about 30c over the current active Chicago September wheat future, although bids were nominally $1.72@1.73 on track, 26c rate points to New York, and were as high as $1.79½@1.80½ in elevators with transit billing, substantially higher, and out of line, with hard wheat prices, both hard winter and spring, in both of which there is no crop scarcity or failure.

Hence at present there is not much to be said about the sale of soft wheat flour because the soft wheat millers have not been given a proper chance to get started on the crop.

EASTERN STATES

Buffalo: Demand and sales both light but interest in movement of spring wheat is at a high point, indicating that as soon as the news is more clearly defined that contracts will be written readily enough. Buyers apparently are making estimates for a heavy fall business, and when their minds are made up as to probable prices, some heavy business will be recorded. Directions very good from all classes of the trade, with the bakery element in the vanguard. Family trade, however, proved the most encouraging, as the pick-up in that branch seems to have broken the slump which set in several months ago and kept sales down. Spring clears continue scarce and prices firm. Foreign trade routine.

Quotations Aug. 7: spring short patent $3.79, spring standard $3.69, spring first clear $3.53, hard winter short patent $3.74, hard winter 95% patent $3.64, hard winter first clear $3.50, soft winter short patent $3.95, soft winter straight $3.90.

New York: Fair aggregate figures result from scattered spotty sales. Moderate activity reported among medium-sized bakers and jobbers, where prices seem right and a market advance is anticipated, but a limited number of brokers participate in this business, so the totals for the market are only fair, and in many offices extreme dullness exists. Buying largely confined to spring wheat grades since soft wheats are nearly nonexistent, and Kansas levels being in many instances above northwesterns, which, in this market, usually gives springs the preference. Shortages of clears from all sections are so great that many mills offer none at all and others hold prices 5@10c over their standards. Cake flours from every section are difficult to obtain, and where available are usually above ceiling levels, so that in spite of good inquiry little business is done on them. Shipping directions better than seasonal and promise continued steady sales.

Quotations Aug. 6: spring high glutens $3.80@3.86, standard patents $3.49@3.76, clears $3.50@3.70; southwestern high glutens $3.55@3.72, clears $3.35@3.45, soft winter straights $3.80@3.95.

Boston: Business almost at a complete standstill and mill agents, realizing the completely unresponsive attitude of the trade, do not press too hard for business. All quotations are firm and near ceilings and the trade is not interested. The tight situation on soft winter types continues with mills not anxious to sell and buyers making no inquiries. Situation slightly different on family flour. Retail sales begin to show signs of improvement and buyers are ordering out previous commitments at a better rate. Mills' quotations in a narrow range and practically unchanged. Quotations Aug. 7: spring high gluten $3.90@3.95, short patent $3.75@3.85, standard patent $3.68@3.75, first clears $3.60@3.65; southwestern short patent $3.80@3.85, standard patent $3.70@3.75, Texas short patent $3.75@3.85, standard patent $3.70@3.75; soft winter patent $3.90@4, straights $3.80@3.90, clears $3.70@3.80.

Pittsburgh: Business shows general improvement, with moderate lots of spring wheat and hard winters flours being booked. Outlook for baking trade as far as sales and production are concerned is good, although some of the smaller operators are handicapped by lack of competent labor and shortage of essential ingredients used in baking cakes and pastry. Family flour demand continues slow, despite active promotion work for its use by housewives, etc. Shipping directions much imrpoved. Demand for clears is strong although supplies are limited. Jobbers report brisk trade with bookings as far ahead as 120 days. Soft winter demand is strong, with supplies far below what is required. Prices are firm at ceiling. Quotations per sack (cwt) Aug. 7: spring wheat short patent $3.75@3.80, straight $3.65@3.68, first spring clear $3.44@3.56; hard winter short patent $3.67@3.80, straight grade $3.50@3.59, high gluten $3.64@3.68, first clear $3.18@3.49, soft winter bakers short patent $4.51@4.64, straight grade $3.44@3.52.

Philadelphia: Market remains in same condition. Undertone continues firm, but business limited and unsatisfactory, with jobbers and bakers showing no inclination to work ahead of well assured wants. As a consequence, sales mostly in a small way for immediate needs; prices largely nominal. Quotations Aug. 7: spring wheat short patent $3.70@3.80, standard patent $3.60@3.70, first spring clear $3.55@3.60; hard winter short patent $3.65@3.75, 95% $3.55@3.60; soft winter straights nominal.

THE SOUTH

New Orleans: Sales are practically negligible here. A few long-time contracts are reported, but there is a general hesitancy on the part of buyers whose ideas of prices do not coincide with millers'. Southwestern hard wheat flours continue in the best demand, with the baking and jobbing industry forming the best outlet. There are a few sales reported in midwestern and Pacific Coast, particularly in the former, but the volume is very small. Shipping directions have held up fairly well, and continue good to normal. Prices in general remain unchanged. Bread and cake production con-

GRAIN FUTURES—CLOSING PRICES

Closing prices of grain futures at leading option markets, in cents per bushel:

WHEAT

	Minneapolis		Chicago		Kansas City		St. Louis		Duluth	
	Sept.	Dec.	Sept.	Dec.	Sept.	Dec.	Sept.	Dec.	Sept.	Dec.
Aug. 4	137	138¾	144⅛	146⅛	138	139¼	....	....	139¼	140⅞
Aug. 5	137	139	144⅝	146⅛	138⅝	139⅝	....	....	138¾	140½
Aug. 6	137⅝	139⅝	145¼	146⅞	139⅝	140½	....	....	139⅝	140⅜
Aug. 7	137¼	139½	144⅞	146⅜	138¾	139⅞	....	....	138⅝	140⅛
Aug. 9	135½	137⅜	143⅛	144⅞	137¼	138½	....	....	137¼	138⅝
Aug. 10	135⅞	138	143⅞	145½	138	139½	..	..	137⅜	138¾

	Portland		Seattle		Winnipeg		Liverpool		Buenos Aires	
	Sept.	Dec.	Sept.	Dec.	Oct.	Dec.	Closed		Closed	
Aug. 4	....	....	136	139	109¾	107⅞	....	....	....	....
Aug. 5	....	....	136½	139½	110¼	108⅞	....	....	....	....
Aug. 6	....	....	137	139½	110⅞	109⅜	....	....	....	....
Aug. 7	....	....	137	139½	110⅞	109⅜	....	....	....	....
Aug. 9	....	....	....	....	110¾	108½	....	....	....	....
Aug. 10	....	....	....	....	111	109¼	....	....	....	....

	CORN						OATS			
	Minneapolis		Chicago		Kansas City		Chicago		Minneapolis	
	Sept.	Dec.	Sept.	Dec.	Sept.	Dec.	Sept.	Dec.	Sept.	Dec.
Aug. 4	....	....	....	....	....	....	70	69⅞	65¾	64⅞
Aug. 5	....	....	....	....	....	....	71⅛	70⅛	66⅛	65⅝
Aug. 6	....	....	....	....	....	....	70½	70¼	65⅝	65⅛
Aug. 7	....	....	....	....	....	....	70¼	69⅝	65⅛	64⅝
Aug. 9	....	....	....	....	....	....	69	68¼	64⅛	63⅝
Aug. 10	....	....	....	....	....	....	69⅛	68⅜	64¼	64

	RYE				FLAXSEED				BARLEY	
	Chicago		Minneapolis		Minneapolis		Duluth		Minneapolis	
	Sept.	Dec.	Sept.	Dec.	Sept.	Dec.	Sept.	Dec.	Sept.	Dec.
Aug. 4	101⅝	103⅞	94	96¼	298¾	301	298¾	....	104	104
Aug. 5	102¾	105¼	96	98¼	298¾	301	298¾	....	103¾	103⅝
Aug. 6	102¾	104⅝	95⅝	97⅞	297	298½	297	....	102⅛	102⅛
Aug. 7	101⅞	104	94⅜	96⅞	296½	298	296½	....	100¾	100⅞
Aug. 9	99	101	92¼	94⅜	295¾	297¼	295¾	....	98½	98
Aug. 10	99⅝	101⅝	92⅜	94⅝	296	297½	296	....	99⅛	99⅛

SUMMARY OF MILLFEED QUOTATIONS

Week-end millfeed quotations, summarized from the market reviews, are based on carload lots, prompt delivery, per ton, packed in 100-lb sacks, f.o.b. at indicated points:

	Chicago	Minneapolis	Kansas City	St. Louis	Buffalo
Spring bran	$....@40.40	$....@37.75	$....@....	$....@....	$....@41.55
Hard winter bran	....@40.40	....@....	36.50@37.00	39.00@39.50	....@....
Standard middlings*	....@40.40	....@37.75	.....@....	39.00@39.50	....@41.55
Flour middlings†	....@40.40	....@37.75	36.50@37.00	39.00@39.50	....@41.55
Red dog	....@40.40	....@37.75	....@....	....@39.50	....@41.55

	Baltimore	Philadelphia	Boston	Cincinnati	Nashville
Spring bran	$....@....	$....@45.65	$....@46.48	$....@....	$....@....
Hard winter bran	....@....	....@45.65	....@....	....@39.50	....@....
Soft winter bran	....@....	....@....	....@....	....@43.10	....@43.30
Standard middlings*	....@....	....@45.65	....@46.48	....@43.10	....@....
Flour middlings†	....@....	....@45.65	....@46.48	....@43.10	....@43.30
Red dog	....@....	....@45.65	....@46.48	....@....	....@....

	Spring bran	Shorts	Middlings
Toronto	$....@29.00	$....@30.00	$....@33.00
¶Winnipeg	....@28.00	....@29.00	....@....

*Brown shorts. †Gray shorts. ¶Fort William basis.

A SUMMARY OF FLOUR QUOTATIONS IN LEADING MARKETS

Week-end flour quotations, per sack (cwt), packed in 100 lbs. (Canadian quotations per bbl of 196 lbs). All quotations on basis of carload lots, prompt delivery.

	Chicago	Minneapolis	Kansas City	St. Louis	Buffalo	New York	Baltimore	Philadelphia	Boston	Cincinnati	†Nashville
Spring first patent	$3.38@ 3.53	$3.28@ 3.30	$....@....	$....@ 3.44	$....@ 3.79	$3.80@ 3.86	$....@....	$3.70@ 3.80	$3.75@ 3.85	$....@....	$....@ ....
Spring standard patent	3.28@ 3.50	3.22@ 3.25	....@....	....@ 3.44	....@ 3.69	3.49@ 3.76	....@....	3.60@ 3.70	3.68@ 3.75	....@....	....@ ....
Spring first clear	3.08@ 3.11	....@....	....@....	....@	....@ 3.53	3.50@ 3.70	....@....	3.55@ 3.60	3.60@ 3.65	....@....	....@ ....
Hard winter short patent	3.34@ 3.52	....@....	3.10@ 3.25	....@ 3.44	....@ 3.74	3.55@ 3.72	....@....	3.65@ 3.75	3.80@ 3.85	....@....	4.23@ 4.49
Hard winter 95% patent	3.24@ 3.47	....@....	3.05@ 3.20	3.44@ 3.49	....@ 3.64	....@....	....@....	3.55@ 3.60	3.70@ 3.75	....@....	4.08@ 4.23
Hard winter first clear	2.83@ 3.20	....@....	2.50@ 2.80	2.68@ 3.06	....@ 3.50	3.35@ 3.45	....@....	....@....	....@....	....@....	....@ ....
Soft winter short patent	3.90@ 4.79	....@....	....@....	....@ 3.98	....@ 3.95	....@....	....@....	....@....	3.90@ 4.00	....@....	4.49@ 4.65
Soft winter straight	3.75@ 4.28	....@....	....@....	....@ 3.74	....@ 3.90	3.80@ 3.95	....@....	....@....	3.80@ 3.90	....@....	4.34@ 4.49
Soft winter first clear	3.32@ 3.57	....@....	....@....	3.32@ 3.75	....@....	....@....	....@....	....@....	3.70@ 3.80	....@....	4.14@ 4.34
Rye flour, white	2.86@ 2.97	2.85@ 2.90	....@....	....@ 3.24	....@ 3.25	3.10@ 3.24	....@....	3.05@ 3.20	....@....	....@....	....@ ....
Rye flour, dark	2.31@ 2.61	2.55@ 2.60	....@....	....@ 2.94	....@ 2.95	....@....	....@....	....@....	....@....	....@....	....@ ....

	Seattle (98's)	S. Francisco	Standard patent—	Seattle	San Francisco		Toronto	**Winnipeg		Toronto	**Winnipeg
Family patent	$....@3.98	$....@....	Dakota	$....@	$....@	Spring top patent¶	$....@5.35	$....@5.30	Spring exports‡	38s 6d	....
			Montana	....@	....@	Spring second pat.¶	....@4.70	....@4.80	Ont. 90% patents‡	$5.35@5.40	....
						Spring first clear¶	....@3.60	....@....			

*Includes near-by straights. †Nashville prices basis f.o.b. Ohio River points for soft winter wheat flour. **In cottons, Fort William basis. ‡Second-hand cottons. ¶98-lb cottons. §280-lb cottons.

tinues good. Cracker and macaroni production is also good to normal.

Quotations per sack (cwt) Aug. 7: hard spring wheat (f.o.b. Minneapolis) family patent $3.50@3.65, first patent $3.40@3.50, standard patent $3.25@3.35, fancy clear $3.20@3.25, first clear $3.10@3.20, second clear $2.85@3; hard winter wheat family patent $3.55@3.65, bakers short patent $3.40@3.50, 95% $3.30@3.40, first clear $3.10@3.25, second clear $2.85@3; soft wheat short patent $4.10@4.40, straight $3.60@3.85, first clear $3.10@3.40.

Nashville: Reports of sales vary, from slow to fairly good. The larger buyers are ordering out flour against contracts but not showing any interest in making new bookings. Some low protein hard wheat patent booked for shipment via Memphis at quite a spread between hard and soft, but it is believed that when the price is fixed on soft wheat at $1.62 Chicago, these two flours will be closer in price.

Bakers report exceptionally good demand. No bookings of any size, but a few day to day purchases of special grades on which supplies are low. Bakers report lack of help and capacity space are problems. Shipping directions fairly good. Prices unchanged. Quotations Aug. 7: soft winter wheat family short patent $4.65@4.81, standard patent $4.49@4.65, straight $4.34@4.49, clears $4.14@4.34; hard winter wheat short patent $4.23@4.49, standard patent $4.08@4.23; soft winter high patent pastry flour $4.59.

Atlanta: Slowness continues to rule the flour business. Bakers continue to hold off in so far as future commitments were concerned, buying only for immediate needs. Sales continue scattered throughout the territory. Buyers still apprehensive of a government subsidy on flour, and this accounts for their reluctance in placing orders for future deliveries. Shipping directions show an improvement over recent weeks, although still slow. Prices practically unchanged. Some little improvement noted in family flour business, although it is still slow. Wholesale grocers and jobbers still are loaded and many express the opinion that they will not order anything until the government's attitude toward a subsidy is known. Prices on cake and pastry flour were withdrawn last week by the sales office of one large milling concern. Blenders continue in the background in so far as buying flour is concerned. They have continued their efforts to do what they can toward relieving the feedstuffs shortage.

Quotations per sack (cwt) Aug. 7: spring wheat bakers short patent $3.81@3.90, standard patent $3.76@3.80, straight $3.55@3.65, first bakers clear $3.33@3.45, nominal; hard winter bakers short patent $3.50@3.67, standard patent $3.45@3.60, straight $3.41@3.50; family short patent $3.93@4.08, fancy patent $3.80, special patent $3.90, low protein 95% $3.50@3.60, from the coast $3.60, bulk; soft wheat, 95% $3.93@4.02, straight $3.90@3.98, fancy cut-off $3.57@3.68; short patent $4@4.10, first clear $3.50, nominal; soft wheat family short patent $4.45@4.65, fancy patent $4.40@4.50; special patent $4.30@4.40; soft wheat 95%, from the coast, $3.80, bulk.

PACIFIC COAST

Seattle: Markets remain very quiet and unchanged, with very little new business reported and little hope for any immediate improvement unless the ceilings are raised or a subsidy is granted processors. With price ceilings on one side and the local wheat market advancing daily, mills cannot operate under present conditions, consequently sales are confined to less than car lots to keep under ceiling prices. Larger buyers still protected for some time to come, but smaller buyers buying anything they can get the mills to offer. Quotations, f.o.b. Seattle or Tacoma, Aug. 7: family patent $3.98.

Portland: There was a small amount of new bookings last week with the army and navy, but this was done privately and not through the bid and offer method. Several of the mills were understood to have participated in the bookings. Wheat prices are still too high for mills to do much in the way of new bookings under present ceiling levels. They can do some less than car lot business, but most of their domestic trade is shut out as wheat prices continue to advance in this market.

Mills are grinding less than usual, with army and navy, plus l.c.l. business, constituting the bulk of their trade. There is no export business going on, with most mills finished with their grinding on previous bookings.

Quotations per sack (cwt) Aug. 7: high gluten $3.57, bluestem bakers $3.47, fancy hard wheat clears $3.31, whole wheat 100% $3.46, graham $3.37, cracked wheat $3.37.

CANADIAN MARKETS

Toronto-Montreal: Spring wheat flour trade throughout this part of Canada holds up well. Bakers and merchants have no incentive to speculate but they do feel sure the market will not let them down while the volume of daily sales of bread and flour holds at the high level of today. Mills find it growingly difficult to get orders already on their books delivered when promised. Labor and transportation conditions are handicaps. Prices for hard springs remain at the ceiling. Quotations Aug. 7: top patents $5.35 bbl, seconds $4.70, bakers $4.40, in 98's, cotton, net cash, car lots, Toronto-Montreal freights.

No further sales for export are reported. Last bookings were on or about July 27. Mills are now sold up to end of November. There is some talk of export sales by country mills of West which have not hitherto done much in over-sea markets, but confirmation is lacking. It is quite probable that wartime business of this kind will find its way to such mills now and until long after the war is over. Prices are nominally up 3d. Quotations, Aug. 7: government regulation Canadian 38s 6d per 280 lbs, cotton, August-September, Halifax; October-November, 38s 9d.

It is between seasons in the winter wheat flour trade. Old crop is passing out and new crop is not readily obtainable. Prices remain as they were a week ago. Quotations, Aug. 7: old crop $5.35@5.40 bbl in second-hand cottons, Montreal basis; new crop 10c under this figure. Bulk lots in buyers' bags are also 10c under.

Deliveres of winter wheat have hardly started but some sales are reported. Quotations Aug. 7: new crop wheat $1.10@1.12 bu, f.o.b. shipping points. Old crop is worth a cent or two over the new.

Winnipeg: No new export business reported in flour, but domestic trade on a good scale and no let-up in heavy mill run in sight for some considerable time. All plants operating to capacity, although labor shortage causing concern. Stocks moving into domestic and export channels as rapidly as possible. In the local oash wheat market, mill buying is apparently on a lighter scale than the past two or three weeks. Quotations Aug. 7: top patent springs for delivery between Fort William and the British Columbia boundary, $5.30, cottons; seconds, $4.80; second patents to bakers, $4.60.

Vancouver: While there have been no signs of any immediate improvement in the export flour picture out of this port, recent reports discussed in grain circles lead dealers to expect that some business may be in the offing.

The reports which are reported to have come from England are to the effect that a large movement of Canadian wheat out of this port to Russia is contemplated. There is nothing of a definite nature to support this belief, but it is felt in flour circles that if such a movement takes place it certainly will include a considerable quantity of Canadian flour. On the other hand grain men here are inclined to discount the report, since such a movement would involve shipping via Pacific waters to Vladivostok through Japanese waters, and in view of the current delicate situation between Russia and Japan, it is not thought likely

STANDARD MILLING COMPANY
Millers of
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BAKERY FLOURS

UNIFORM QUALITY FLOURS
PLAIN AND SELF-RISING
Low cost laboratory controlled mill grinding all types of wheat
Pancake Flour—Cake Flour—Farina—Whole Wheat Products—Prepared Biscuit Flour
CHELSEA MILLING CO., Chelsea, Mich.

Choice
MILLING WHEAT
NORRIS GRAIN COMPANY
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Use THE W. E. LONG CO. LABORATORIES for prompt, accurate, complete reports. Chemical Analyses, Baking Tests, Vitamin Determinations, and Special Testing for Mills, Bakeries and Allied Industries.
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FLOUR
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KANSAS' FAMOUS
FLOUR
★ ★ ★ ★ ★ ★
THE WM. KELLY MILLING CO.
Capacity 2,500 Barrels HUTCHINSON, KANSAS

WANT ADS

Advertisements in this department are 5c per word; minimum charge, $1. (Count six words for signature.) Situation Wanted advertisements will be accepted for 2½c per word, 50c minimum. Display Want Ads $4 per inch per insertion. All Want Ads cash with order.

HELP WANTED

WANTED—SECOND MILLERS, STEADY work guaranteed. Apply Schultz, Baujan & Co., Beardstown, Ill.

WANTED—CHIEF CHEMIST TO HEAD laboratory control work in large feed and flour mill located in the Middle West; must have laboratory baking experience; state qualifications and give detailed information in first letter; excellent working conditions and proper salary to right man. Address 6279, The Northwestern Miller, Minneapolis 2, Minn.

SITUATIONS WANTED

EXPERIENCED FLOUR SALESMAN, MARRied, draft exempt, well acquainted with Wisconsin wholesale grocers, bakers and jobbers; desires position working in Wisconsin for well established flour mill. Address 6267, The Northwestern Miller, Minneapolis 2, Minn.

EXPERIENCED, HIGHLY TRAINED miller, that can produce better flour for less; formerly connected with one of America's leading mill builders; five-day week service rendered, Monday through Friday, Sundays when needed; go anywhere at once. Address 720 Kilian Blvd, St. Cloud, Minn.

MACHINERY WANTED

WANTED—BRIGHTWOOD BOX MACHINE —Pneumatic scale packaging machine; two flour blenders. Address 4970. The Northwestern Miller, Minneapolis, Minn.

MACHINERY FOR SALE

ROLLER MILLS, SIFTERS, REELS, BRAN dusters, elevators, conveyors, scourers. Schuchardt Bros., 1901 No. 2nd St., Minneapolis, Minn.

THREE ALLIS STYLE A ROLLER MILLS, 10x30; one 60-bbl Sprout-Waldron mill complete, with sifters. Richardson Grain Machinery Co., 1901 Second St N, Minneapolis, Minn.

MISCELLANEOUS

OBSOLETE BRANDS OF COTTON BAGS —any size from 3 lbs up; will be used for packing metal parts. Container Products Co., 2688 East 37th St., Cleveland 15, Ohio.

SCRAP COTTON BAGS, CAN BE TORN, soiled or water damaged; any quantity. Get your scrap into the scrap. We need this material to supply war industry customers. Container Products Co., 2688 East 37th St., Cleveland 15, Ohio.

We are always ready to fill your requirements of
MILLING WHEAT
MOORE-SEAVER GRAIN CO.
Operating Kansas City Southern Elevator Kansas City, Mo.

Milling Executives
Let Us Clarify Your Lines of
RESPONSIBILITY
Why struggle through endless detail when simpler methods of procedure are available?
Write for full information.
ARTHUR L. CHANDLER & CO.
Management Counsellors
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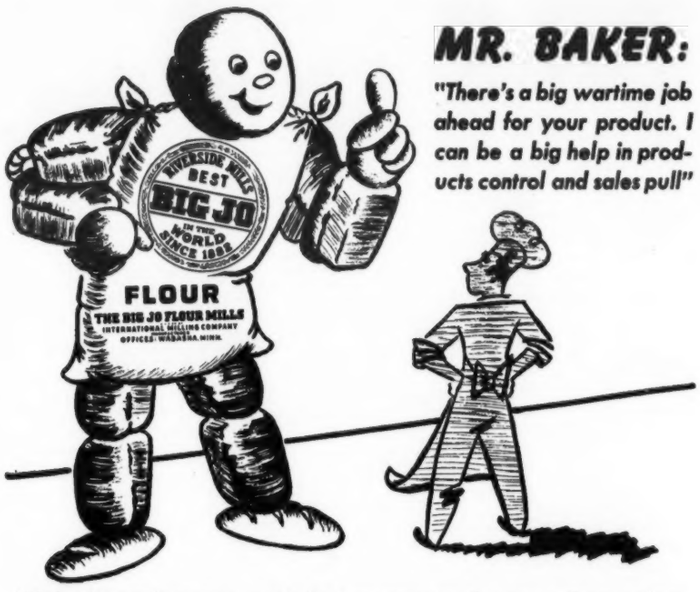


MR. BAKER:

"There's a big wartime job ahead for your product. I can be a big help in products control and sales pull"

"Sales booming your way? And manpower for your shop going down in like proportion?
"I'm a husky helper who can take up the slack in this situation.
"I've got the strength to smooth out the production wrinkles in your plant. And for the same reason, to help you get out more bread with minimum manpower.
"Let me demonstrate?"

Big Jo
Fancy short patent
Diamond Jo
Standard bakers' patent
Chief Jo
High protein
and sister "Josie"
Strong, fancy clear

THE BIG JO FLOUR MILLS
Wabasha, Minnesota

GOLDEN LOAF FLOUR

A Flour With an Outstanding Reputation for Uniformity and High Quality

TENNANT & HOYT CO.
Established 1901
2,000 Bbls Daily Capacity
LAKE CITY, MINNESOTA

that a chance would be taken on such foodstuffs.

There continues to be interest shown by Central American buyers in all kinds of Canadian flour, but lack of rail and steamship space precludes any possibility of early business.

Domestic hard wheat flour sales to the bakery trade continue active, although store sales are on the low side. Prices are holding at ceiling levels, with supplies reported ample. Current quotations on a cash car basis for 98's cottons are $5.40 for top patents, $5 for bakers patents and $4.90 for Vitamin B.

Supplies of Ontario soft wheat flour are reported low and are expected to continue as such until the new crop is harvested. Western dealers are wondering how much of the new grind will be available here since there is a short crop and heavy demand back East. Current quotations to the trade are at ceiling levels of $7.50.

RYE PRODUCTS

Minneapolis and interior Minnesota: A little more activity; when the market showed signs of strengthening last week, following the decline, a good many buyers rushed to cover near-by needs; sales, while not heavy, were best in several weeks; directions fair to good; pure white rye flour $2.85@2.90 per cwt, in cottons, f.o.b. Minneapolis; pure medium $2.75@2.80, pure dark $2.55@2.60—narrowing the spread somewhat between dark and the top grades.

Pittsburgh: Demand moderate; trend steady; supply ample; pure white rye flour $2.68@2.81, medium $2.55@2.68, dark $2.30@2.37.

Chicago: Only a moderate amount of business reported. Sales scattered and in small lots only; directions fair; white patent rye $2.86@2.97, medium $2.76@2.87, dark $2.31@2.61.

New York: Moderate sales reported; directions fair; pure white patents, $3.10@3.24.

St. Louis: Prices steady; sales and shipping instructions slow; pure white flour $3.24, medium $3.14, dark $2.94, rye meal $3.04.

Buffalo: Demand fair; trend steady; supply ample; white $3.25, medium $3.15, dark $2.95.

Portland: Pure dark rye $3.42, medium dark rye $3.45, Wisconsin pure straight $3.81, Wisconsin white patent $3.94.

Philadelphia: Market somewhat unsettled and irregular, with declines in evidence, but little net change in prices at the close. Offerings moderate but ample, as trade is generally quiet; white patent, $3.05@3.20.

SEMOLINA MARKETS

Minneapolis: Fairly good demand, and marked improvement in volume of shipping directions. Most durum mills are well sold ahead, and not particularly keen about further bookings at this time. Holding for ceilings on top grades.

In the week ended Aug. 7, nine Minneapolis and interior mills made 136,973 sacks (cwts) durum products against 149,938 in the previous week.

St. Louis: Prices steady; sales and shipping directions slow; first grade semolina $3.99, granular $3.81, No. 3 $3.73, fancy patent $3.99.

Pittsburgh: Demand limited; trend unchanged; supply ample; per cwt, No. 1 fancy $3.98, standard No. 1 $3.88.

Buffalo: Demand slow, with sales rather light, but a light pickup in directions; buyers still awaiting further crop news and trying to detect influences on prices; trend steady; supply fair; on bulk basis, No. 1 $3.99, durum fancy patent $3.99, macaroni flour $3.73, first clear $3.12, second clear $2.92; durum granular not quoted.

Chicago: Only a small amount of business reported. Most mill prices at the ceiling, with buyers in the main indifferent; directions fair; No. 1 semolina $3.76, standard No. 1 semolina $3.66.

Philadelphia: Trade quiet and prices show no important change; offerings only moderate; No. 1 fancy $4.02, No. 1 regular $3.92.

OATMEAL MARKETS

Toronto-Montreal: Mills report trade slack and of no special interest. Quotations Aug. 7: rolled oats $3.15 per bag of 80 lbs in mixed cars; oatmeal, in 98's, jute, $3.80 bag, Toronto or Montreal.

Winnipeg: Demand for rolled oats and oatmeal light; supplies about equal to demand. Quotations Aug. 7: rolled oats, in 80-lb sacks, $3.25, in the three prairie provinces: oatmeal, in 98-lb sacks, 20% over rolled oats.

Minneapolis: Rolled oats were quoted on Aug. 9 at $4.50 per 90 lbs, bulk; 20-oz packages $2.20 case, 48-oz packages $2.35.

Millfeed Receipts and Shipments

Receipts and shipments of millfeed at the principal distributing centers for the week ending Aug. 7, in tons, with comparisons:

	Receipts		Shipments	
	1943	1942	1943	1942
Minneapolis ...	...	...	17,040	7,550
Kansas City ..	1,300	2,175	6,700	3,825
Milwaukee	90	80	3,540	2,820
Philadelphia ..	200	440	...	...

SEVEN
Great Bread Makers
From Selected Spring Wheat

DULUTH UNIVERSAL
PRIDE OF DULUTH
DULUTH RELIABLE
PURE GOLD
FARM GOLD
APEX—Fancy Clear
RED INDIAN—First Clear

Try our high protein spring wheat Graham and Whole Wheat flours, Farina and Pure Wheat Germ.

Duluth Universal Milling Co.
DULUTH, MINN.

Better flour for Baker, Jobber and Grocer....

"HAVASAK"

SECURITY FLOUR MILLS CO.
Operating SECURITY and MID-WEST Mills
W. A. CHAIN, Mgr. ABILENE, KANSAS

North Dakota and Montana
FANCY SPRING PATENTS, CLEARS and WHOLE WHEAT FLOUR
Hi-Protein
A Specialty
Mills in the Heart of the Spring Wheat Section
Capacity, 700 Barrels
MINOT FLOUR MILL CO.
MINOT, N. D. GLASGOW, MONT.

Igleheart Brothers, Inc.
Evansville, Indiana
MILLS STRATEGICALLY LOCATED IN THE CENTRAL WEST AND ON THE PACIFIC COAST
Cracker, Pastry, Cake, Doughnut, Cone, Cookie And All Other Special Flours

New Mill Completed 1936
"SLOGAN"
A Modernized Flour for the Baker
CANADIAN MILL & ELEVATOR CO.
El Reno, Okla.

I-H
QUALITY MILLED FLOURS
Ismert-Hincke Milling Co.
Kansas City, Mo.

THEY COME UP SMILING!

'HOT' OR 'COLD' RUSSELL-MILLER FLOURS HAVE THE TOLERANCE TO PRODUCE GOOD BREAD UNDER A WIDE RANGE OF CONDITIONS

THERE'S A RUSSELL-MILLER FLOUR FOR EVERY BAKING PURPOSE
OCCIDENT • SWEET LOAF
PRODUCER • KYROL
SUNBURST • POWERFUL
and more than 50 other Bakery Flours
RUSSELL-MILLER MILLING CO.
Headquarters • Minneapolis, Minn.

"OLD SQUIRE"
Always is good flour. Pays no attention to ups and downs and this and that.
Just always GOOD FLOUR
Moore-Lowry Flour Mills Co.
Board of Trade Bldg. Kansas City, Mo.

"Hunter's CREAM"
A Kansas Turkey Wheat Flour
that for more than sixty years has stood at the very top of the fine quality list.
The Hunter Milling Co.
Wellington, Kansas

"Sweet Cream"
"Very Best"
Quality Flours
W. J. JENNISON CO.
MINNEAPOLIS, MINN.

MINER-HILLARD MILLING CO.
WILKES-BARRE, PA.
Manufacturers of
Wheat, Rye, Corn and Buckwheat Flours

WE ARE LARGE BUYERS of PURIFIED MIDDLINGS and PURIFIED WHEAT GERM
We will be glad to get your quotations
The Cream of Wheat Corporation
Minneapolis, Minnesota

PINCH HITTING FOR SKILL

Time and temperature have always been highly important in the manufacture of bread; and to these, today's manpower shortage has added the problem of unskilled help.

Now bakers have to have a flour that will give them some tolerance, and lend itself to some degree of irregularity and yet not reflect this lack of handling efficiency in the finished loaf.

High protein, hard wheat SAPPHIRE FLOUR will prove of assistance to the baker in this connection. In itself SAPPHIRE is so unvarying, of such high quality, and so easy to bake into bread of exceptional merit, that the harried baker will welcome it into his shop.

For the best handling of today's market problem, selection of flour should not be made solely on a price basis.

MONTANA FLOUR MILLS CO.
General Offices
GREAT FALLS, MONTANA

"It's the Wheat"
MONTANA SAPPHIRE FLOUR

Lyon & Greenleaf Co., Inc.
MILLERS OF
High Grade Soft Winter Wheat Flour
Plain and Selfrising
LIGONIER, IND. NORFOLK, VA.

Soft Cake Flour
For Biscuit Manufacturers
WATSON HIGGINS MILLING CO.
GRAND RAPIDS, MICH.

"SUPERFLOUR"
"BUFFALO"
Tops in Bakery Flours
★ ★
THE WILLIS NORTON CO.
Quality Millers Since 1879
Capacity 1,500 Bbls. WICHITA, KANSAS

THE ROSS MILLING CO.
Choice Quality Flour
Plain and Selfrising
OTTAWA KANSAS

SEARCHLIGHT
SHORT PATENT FLOUR
Only highest grades spring wheat used; produces excellent bread of fine flavor. Ask for samples.
WISCONSIN MILLING CO.
Menomonie, Wis.

"Whitewater Flour"
Ground Where the Best Wheat Is Grown
WHITEWATER FLOUR MILLS CO.
Whitewater, Kansas

Mother Hubbard Flour
FOR QUALITY, FLAVOR AND ECONOMY
Hubbard Milling Co.

An EXTRA HOUR OF DOUGH STABILITY WITH WISDOM DIA-GLUTEN FLOUR

A new development which greatly extends fermentation tolerance. Provides more time for "cutting over" or giving dough extra punches. If you want a flour which will stand abuse, write or wire
NEBRASKA CONSOLIDATED MILLS COMPANY
1521 N. 16th St. OMAHA, NEBRASKA

A Real Gem in Flour
KANSAS DIAMOND
Made by
Arkansas City Flour Mills Co.
Arkansas City, Kansas
Daily Capacity 2,000 bbls

"Sasnak Flour"
For Discriminating Eastern Buyers
ENNS MILLING CO., Inman, Kan.

THE QUAKER LINE
Flour — Cornmeal
Commercial Feeds
THE QUAKER OATS CO.
St. Joseph, Mo.

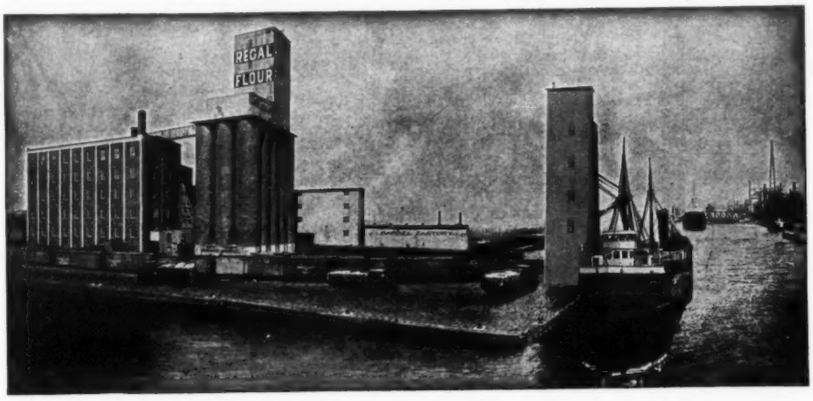
CLEAR
— *Flour* —
The right clears for your needs, at the right price—and *when you want them.*
L. R. JEWELL & SON—"*Flourists*"
205-6 New York Life Bldg.—L. D. 74—Kansas City, Mo.
Strictly Flour Brokerage For Over 30 Years

D. A. CAMPBELL, President

T. WILLIAMSON, Vice President and Managing Director

The St. Lawrence Flour Mills Co., Ltd.

MONTREAL ● CANADA



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Hard Wheat Flours

"Regal"
"Fleur de Lis"
"National"
"Daily Bread"
"Citadel"

3,000 barrels per day
Quality uniformly maintained for over 25 years

BY APPOINTMENT TO HIS LATE MAJESTY KING GEORGE V.

Canada's oldest and largest Millers

BRANDS:

Flour
"ROYAL HOUSEHOLD"
"GLENORA"
"FAMOUS"
"BUFFALO"

Cereals
"OGILVIE OATS"
"WHEAT HEARTS"
"OGILVIE BLENDIES"

THE OGILVIE FLOUR MILLS COMPANY, LIMITED

HEAD OFFICE, MONTREAL, CANADA

Mills at:
Montreal, Fort William, Winnipeg, Edmonton and Medicine Hat
Cable Address: OGILVIE, MONTREAL. *All codes used.*

SPILLERS LIMITED

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Millers of the
HIGHEST QUALITY FLOUR
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PROVENDER AND BALANCED RATIONS
FOR ALL CLASSES OF FARM STOCK

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TORONTO ELEVATORS LIMITED

Grain and Feed Merchants

4 Million Bushel Elevator—Toronto
3 Million Bushel Elevator—Sarnia

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The ALBERTA PACIFIC GRAIN COMPANY LIMITED

462 Country Elevators
Terminal Elevator Capacity, 9,461,500 Bus.
Grain Exchange, Winnipeg

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Cable Address: "PRAMILLCO," Toronto.

Export Flour INSURANCE

"All Risks"

Special Service to Flour Mills on Export and Domestic Ocean and Lake Insurance and Transportation

Thirty-Five Years' Experience in Export Flour Handling

Western Assurance Company
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Canadian Hard Spring Wheat — 450 Elevators in Manitoba, Saskatchewan and Alberta.

High Test
Country Run
United Grain Growers, Ltd.
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WESTERN CANADA FLOUR MILLS COMPANY LIMITED

CABLE ADDRESS: LAKURON — TORONTO, CANADA

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PURITY **STERLING**

THREE STARS **CANADA CREAM**

GREAT WEST • BATTLE • MAITLAND • HURON

All Western Canada Hard Wheat Flours

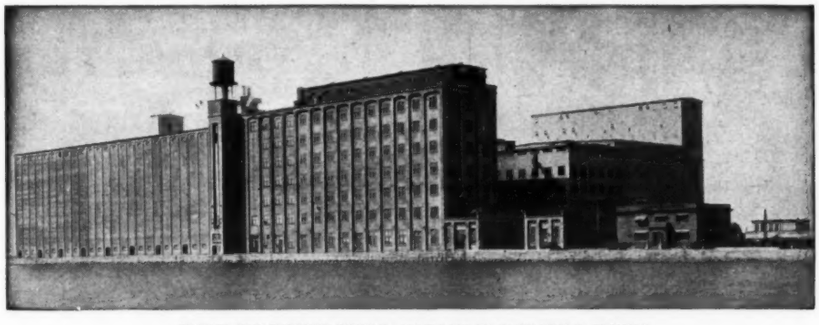
FLOUR MILLING CAPACITY 9,500 BBLS DAILY — ROLLED OATS AND OATMEAL 400 BBLS DAILY

UNIFORM QUALITY GUARANTEED

CANADA'S LARGEST FLOUR EXPORTERS

Head Office— Toronto, Ontario

Cable Address— "Mapleshaw," Toronto, Canada



PORT COLBORNE MILLS—CAPACITY 12,000 BBLS. DAILY

Maple Leaf Milling Co. Limited.

EXPORT OFFICES:
TORONTO NEW YORK VANCOUVER

MILLS AT
TORONTO, ONTARIO MEDICINE HAT, ALBERTA PORT COLBORNE, ONTARIO

CHOICEST CANADIAN *Hard Spring Wheat*

and perfect milling facilities have placed our products in the van.

BRANDS

"VICTORY" - "PRAIRIE BLOSSOM"
"WOODLAND" - - "HOMELAND"

THE DOMINION FLOUR MILLS, LTD.

Cable Address: "DOMFLOUR" MONTREAL, CANADA

QUALITY UNIFORMLY MAINTAINED SINCE 1887

Lake of the Woods Milling Co., Limited

Cable Address
"HASTINGS"
Montreal

ALL
CABLE CODES
USED

Makers of CANADIAN HARD SPRING WHEAT *Flour*

Owning and Operating
Wheat-Receiving Elevators in Manitoba,
Saskatchewan and Alberta

Mills at
Brantford, Keewatin, Portage la Prairie,
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JUTE BAGS COTTON

OLDEST ESTABLISHED MANUFACTURERS OF
JUTE **BAGS** COTTON
IN CANADA

Factories—MONTREAL - TORONTO

The CANADIAN BAG CO., Limited
Head Office: MONTREAL, QUEBEC

JUTE BAGS COTTON

GREAT STAR FLOUR MILLS, Ltd.
Successors to Wolverton Flour Mills Co., Ltd.
Canadian Spring and Winter Wheat Flour
"SILVERKING" "GREAT STAR" "WOLF" "KEYSTONE"
Cable Address: "WOLMACS" ST. MARY'S, ONTARIO, CANADA

LAKESIDE MILLING COMPANY, Ltd.
"BLOSSOM *of* CANADA" "YORK" "NORDIC"
Cable Address: LAKESIDE TORONTO, CANADA

Since 1857
James Richardson & Sons
LIMITED
Grain Merchants Shippers and Exporters
WINNIPEG · CANADA
Export Offices - MONTREAL and VANCOUVER
Cable Address: "JAMESRICH"

RETAIL GROCERS URGED TO PUSH CEREAL FOODS

Retailers are learning many new things today, things a year or two ago they would not have believed possible. One of the big things that many grocers have discovered is the profits that are to be had by the proper merchandising of "Cereals."

For several weeks the Retail Grocers Advocate has been suggesting that the grocer "double his cereal display," and thus increase his profits. And the many grocers who have followed the suggestion have found out for themselves that "Doubling Your Cereal Display Creates Twice the Attention" for this department. Naturally, the more attention cereals attract, the more cereals customers will buy.

"There are many points in the favor of cereal merchandising," says the Retail Grocers Advocate, "all of which have been covered in these articles. A review of these points now is in order so that retailers who may have missed any of these merchandising articles may be able to check for themselves the reasons for tying-in with this, the biggest food promotion since Pearl Harbor.

"First and foremost, there is no shortage in the supply of cereals. In these days of shortages in most everything else, the retailer will find great relief in being able to order as much cereals as he may wish, piling his shelves and displays high with them and never restricting a customer in the purchase of any of them. This also gives the customer a feeling of confidence in the retailer's ability to supply his needs in the food line.

"The fact that cereals are not rationed is an added incentive to the grocer to push this line in every way. Just think, no stamps to bother with when Mr. Grocer sells cereals to his customers, and no stamps to worry about when he buys cereals from his wholesaler, jobber or manufacturer. That in itself is a money-saver, timesaver, and headache-saver. Also, many cereals lend themselves to related-item sales, particularly breakfast cereals and fresh fruits. And since fruits are not rationed either, the retailer has a double advantage in such merchandising.

"The fact that cereals are attractively packaged and thus lend themselves ideally to display merchandising is another big point in their favor. Retailers who have made mass displays of their cereals have reported that the sales resulting from those displays were 'way beyond expectations. The psychological effect when consumers see unlimited amounts of the food items they are so fond of, tends to make them purchase more of these cereals and work them into more of their menus.

"To be sure, cereals are still a most important breakfast food, but more and more the harassed housewife is working cereals into recipes that may be used as main dishes for other meals, as extenders for limited meat dishes or as desserts for luncheon or dinner. There just doesn't seem to be any limit to the ingenuity of Mrs. America and she only needs the inspiration that a mass display of cereals in her favorite grocery store will give her to make her buy and use more of these favorite foods."

ARNOLD
...of...
STERLING
Mills and Sells
"Thoro-Bread"
(Diastatically Balanced)
A very fine, strong, altogether uniform and dependable flour
ARNOLD MILLING CO.
STERLING, KANSAS

The ROBINSON MILLING COMPANY
SALINA, KANSAS

Dependable Hard and Soft Wheat Bakery and Family Flours
SAXONY MILLS
ST. LOUIS, MO.
Our 94th year

HIGH
UTILITY
PATENT
Country-Milled from Country-run Wheat located in the very center of the High Protein Turkey Wheat Country.
INDEPENDENT OWNER MANAGED
The WALL-ROGALSKY MILLING CO.
McPHERSON, KANSAS

Pfeffer Milling Company
Manufacturers of Pure High-Grade Winter Wheat Flour
Brands: Lebanon Bell, Flake White, Fluffy Ruffles
LEBANON, ILL.
Member Millers' National Federation
Capacity: 1,000 bbls

W. S. KIMPTON & SONS
Flour Millers
MELBOURNE, AUSTRALIA
Cables: "GLUTEN," Melbourne

MUNGO SCOTT, Pty., Ltd.
FLOUR MILLERS
Cable Address: "SUPERB" Established 1894
Summer Hill, Sydney, N.S.W., Australia

GILLESPIE BROS., Pty., Ltd.
FLOUR MILLERS
SYDNEY, N.S.W., AUSTRALIA
CABLE ADDRESS, "GILLESPIE," SYDNEY

WISCONSIN RYE FLOUR
Of Uniform and Highest Quality Made From Wisconsin Grown Rye
White Heather Blue Ribbon Rye Meal
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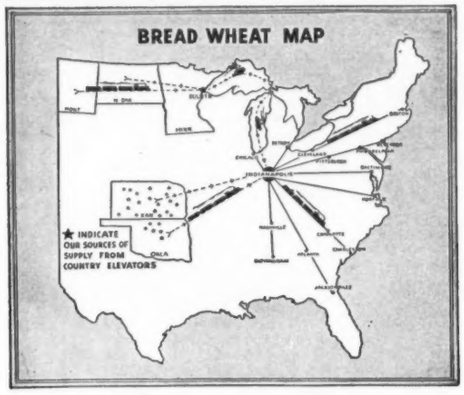

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Over a Century of Milling Progress
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Any Grade—Any Quantity—Any Time
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"AMERICAN SPECIAL"
Our mill is located in the high protein wheat district of central western Kansas, and secures most of its wheat directly from growers.
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We make a high-grade pure winter rye flour
Ask for sample and quotations.
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AS FINE A BAKING FLOUR AS A BAKER CAN BUY AT ANY PRICE
Established 1874 1,500 Barrels Daily

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INDIANAPOLIS, IND., U. S. A.
Manufacture Kiln-Dried WHITE CORN PRODUCTS
Capacity, 16,000 Bushels

GRIST OF GRINS

THRIFTY

An old lady, who was about to die, told her niece to bury her in her black silk dress, but to cut the back out and make herself a dress.

"Oh, Aunt Mary," said the niece, "I don't want to do that. When you and Uncle Charlie walk up the golden stairs, I don't want people to see you without any back in your dress."

To which the old lady replied: "They won't be looking at me. I buried your Uncle Charlie without his pants."

WRONG WORD

Judge.—"Rastus, do you realize that by leaving your wife, you are a deserter?"

Rastus.—"Jedge, if you know'd that woman like I does, you wouldn't call me a deserter. I's a refugee!"

He (on the telephone).—Hello, dear! How about us having dinner together this evening?

She.—I would love it.

He.—Well, tell your mother I'll be over about 7 o'clock.

PERHAPS

Englishman—I say, what are they doing?

American—They're dancing.

Englishman—They get married later, don't they?

"So your husband's in the Army now, Mrs. Brown?"

"Yes; they've made him a gunner, an' that's what he's been ever since I married him!"

"Always been a gunner?"

"Yes; ever since I knew him he's been 'gunner do this' and 'gunner do that,' but he never did anything worth while!"

The trainer put his two performing dogs through their routine, while the vaudeville agent watched, utterly bored until, at the finish, the little dog piped up, "Well, pal, how about booking us?"

"My God!" exclaimed the agent, electrified. "You don't mean the little dog's talking?"

"Nah," said the trainer wearily. "The big dog's a ventriloquist."

FRANK, ANYHOW

A. Wolfe.—How about taking a little ride in the country?

Red Riding Hood.—Not tonight—I'm too tired. How about running out of gas here in town?

John Geiger knows a man who is so honest that he worked in a bath house for 10 years and didn't take a single bath.

WOLF'S PREMIUM FLOUR
As fine a flour as you will find milled from the finest Turkey wheat in the heart of Kansas in
An Independent Mill
WOLF MILLING CO.
ELLINWOOD, KANSAS

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White Crest Red Crest
High Ratio Cake Flours
J. C. L.
Sponge Cracker Flour
The J. C. Lysle Milling Company
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The Standard Others Strive to Reach
WHITE SWAN
FLOUR
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1863-1941
FLOUR 1,000 BBLS.
STOCK FEED 250 TONS
WYMORE • NEBRASKA

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Successful Millers for Fifty Years
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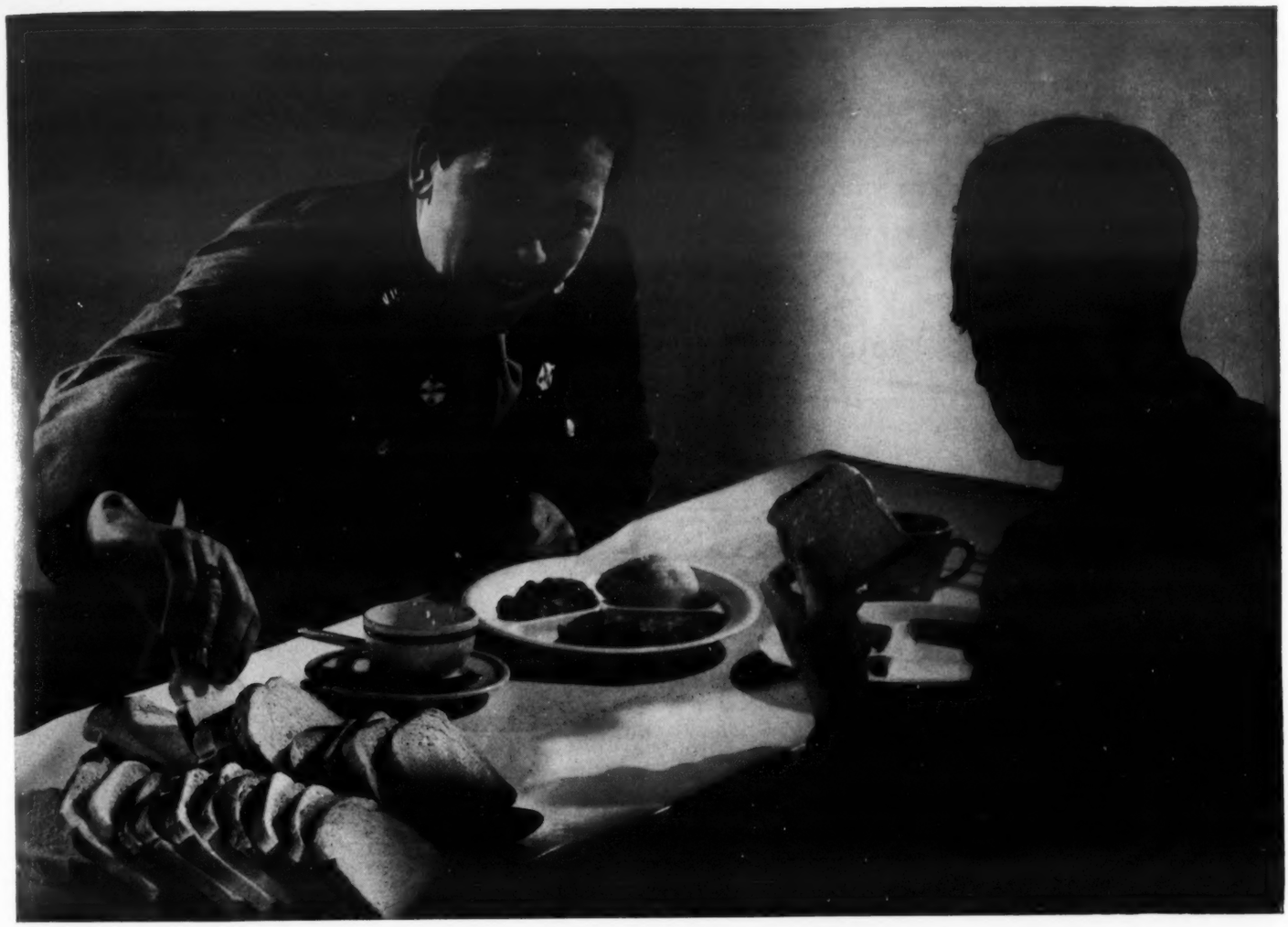


HE'S DEVELOPED A 13,000-MILE *Reach!*

That extra slice of bread he's reaching for got its start on the plains of Kansas, 13,000 miles from his present (censored) location. But the more significant fact is that, two years ago, he might not have reached for an extra slice at all! Uncle Sam is finding that he consumes twice as much bread in service as he did in civilian life.

Here in America, too, wherever men and women are working harder, they are learning to "eat heartier", and are getting a greater proportion of the energy they need from bread and other products made from flour.

A continuing preference for products made from white flour is deeply rooted in American eating habits. Today, the milling industry is helping to *make America strong* by producing flour not only appetizingly white and well-matured, but enriched with essential nutrients.

Novadel-Agene is proud of its association with so many millers in carrying out this important wartime responsibility. If you are not now fully informed on the place of Novadelox, Agene and N-RICHMENT-A in improving the uniformity and nutritive quality of flour, just write: NA-94

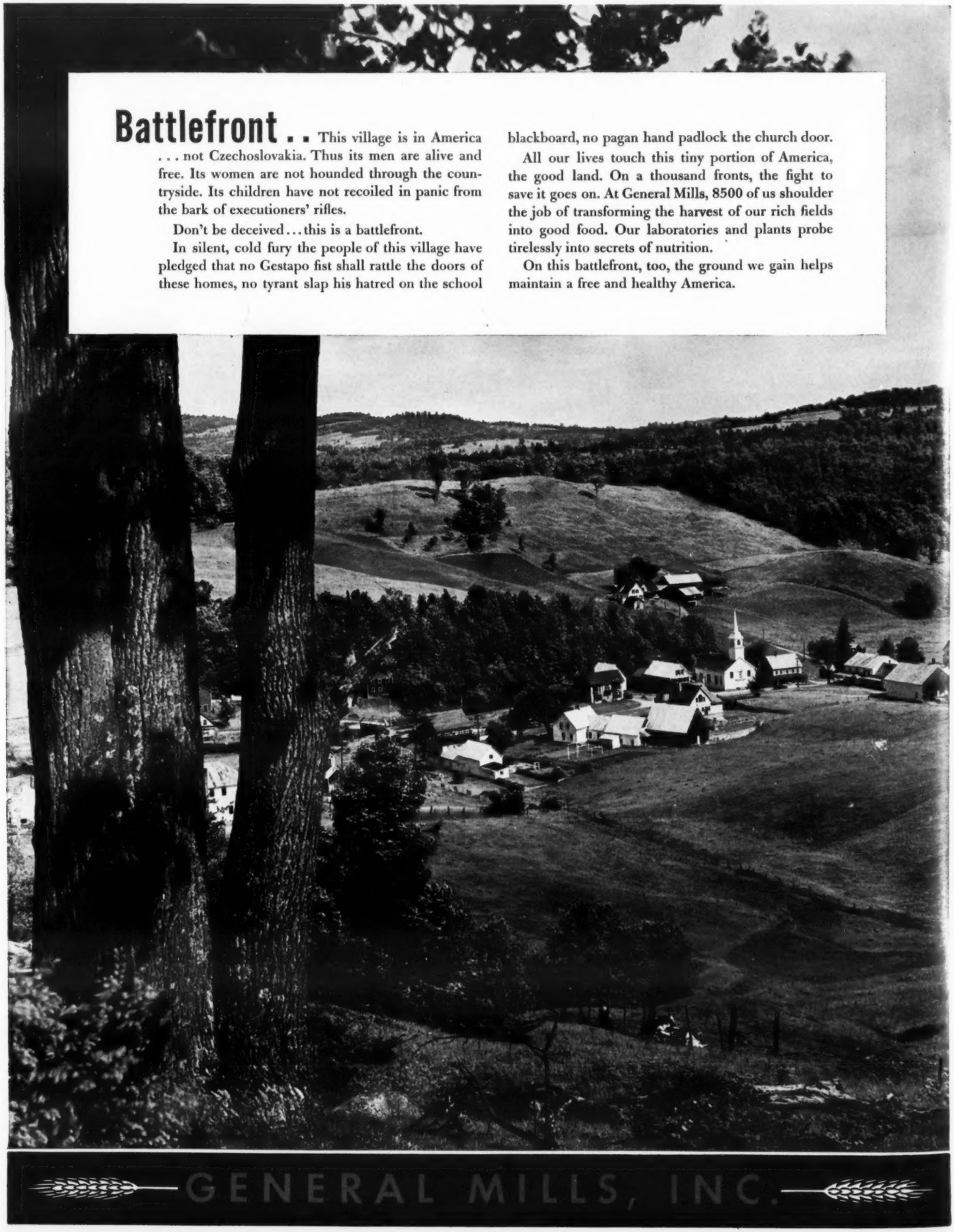
REGISTERED TRADE MARK

THE MILLER for standardized { Agene / Novadelox } { Maturity / Color }

WALLACE & TIERNAN CO., INC., AGENTS FOR

NOVADEL-AGENE

BELLEVILLE, NEW JERSEY



Battlefront . . This village is in America . . . not Czechoslovakia. Thus its men are alive and free. Its women are not hounded through the countryside. Its children have not recoiled in panic from the bark of executioners' rifles.

Don't be deceived . . . this is a battlefront.

In silent, cold fury the people of this village have pledged that no Gestapo fist shall rattle the doors of these homes, no tyrant slap his hatred on the school blackboard, no pagan hand padlock the church door.

All our lives touch this tiny portion of America, the good land. On a thousand fronts, the fight to save it goes on. At General Mills, 8500 of us shoulder the job of transforming the harvest of our rich fields into good food. Our laboratories and plants probe tirelessly into secrets of nutrition.

On this battlefront, too, the ground we gain helps maintain a free and healthy America.

GENERAL MILLS, INC.